

Dialog
11/22/83

Your SELECT statement is:

s ((track? or follow? or poll? or record?)(4n)(path or paths or location? ? or route or routes)(4n)(car or cars or automobile? ? or vehicle? ? or truck? ?)) and (toll or tolls) and py<=1997

Items	File
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6	9: Business & Industry(R)_Jul/1994-2003/Nov 20
4	13: BAMP_2003/Nov W3
15	15: ABI/Inform(R)_1971-2003/Nov 20
30	16: Gale Group PROMT(R)_1990-2003/Nov 21
1	18: Gale Group F&S Index(R)_1988-2003/Nov 24
Processing	
11	47: Gale Group Magazine DB(TM)_1959-2003/Nov 21
3	63: Transport Res(TRIS)_1970-2003/Oct
Examined 50 files	
1	80: TGG Aerospace/Def.Mkts(R)_1986-2003/Nov 21
4	88: Gale Group Business A.R.T.S._1976-2003/Nov 20
2	141: Readers Guide_1983-2003/Oct
Examined 100 files	
44	148: Gale Group Trade & Industry DB_1976-2003/Nov 24
1	149: TGG Health&Wellness DB(SM)_1976-2003/Nov W1
16	180: Federal Register_1985-2003/Nov 20
Examined 150 files	
1	262: CBCA Fulltext_1982-2003/Nov
1	264: DIALOG Defense Newsletters_1989-2003/Nov 21
3	275: Gale Group Computer DB(TM)_1983-2003/Nov 21
Examined 200 files	
3	340: CLAIMS(R)/US Patent_1950-03/Nov 18
1	342: Derwent Patents Citation Indx_1978-01/20035354
1	345: Inpadoc/Fam. & Legal Stat_1968-2003/UD=200345
16	348: EUROPEAN PATENTS_1978-2003/Nov W03
>>>File 349 processing for FOLLOW? stopped at FOLLOWM	
>>>File 349 processing for POLL? stopped at FOLLOWED	
10	349: PCT FULLTEXT_1979-2002/UB=20031120,UT=20031113
1	387: The Denver Post_1994-2003/Nov 21
Examined 250 files	
1	474: New York Times Abs_1969-2003/Nov 21
1	475: Wall Street Journal Abs_1973-2003/Nov 20
3	476: Financial Times Fulltext_1982-2003/Nov 22
Examined 300 files	
9	484: Periodical Abs Plustext_1986-2003/Nov W3
1	486: Press-Telegram_1992-2003/Nov 20
1	487: Columbus Ledger-Enquirer_1994-2003/Nov 21
4	492: Arizona Repub/Phoenix Gaz_19862002/Jan 06
3	494: St LouisPost-Dispatch_1988-2003/Nov 20
1	498: Detroit Free Press_1987-2003/Nov 21
2	536: (GARY) POST-TRIBUNE_1992-1999/Dec 30
1	542: SEC Online(TM) 10-K Reports_1997/Sep W3
6	545: Investext(R)_1982-2003/Nov 22
Examined 350 files	
5	553: Wilson Bus. Abs. FullText_1982-2003/Oct
3	570: Gale Group MARS(R)_1984-2003/Nov 24
3	608: KR/T Bus.News._1992-2003/Nov 22
Examined 400 files	
1	619: Asia Intelligence Wire_1995-2003/Nov 21
4	621: Gale Group New Prod.Annou.(R)_1985-2003/Nov 24
2	624: McGraw-Hill Publications_1985-2003/Nov 21
5	631: Boston Globe_1980-2003/Nov 21
1	633: Phil.Inquirer_1983-2003/Nov 18
4	634: San Jose Mercury_ Jun 1985-2003/Nov 21

210

5 635: Business Dateline(R)_1985-2003/Nov 20
 39 636: Gale Group Newsletter DB(TM)_1987-2003/Nov 21
 4 637: Journal of Commerce_1986-2003/Nov 24
 1 638: Newsday/New York Newsday_1987-2003/Nov 20
 2 641: Rocky Mountain News_Jun_1989-2003/Nov 19
 3 642: The Charlotte Observer_1988-2003/Nov 21
 1 645: Contra Costa Papers_1995- 2003/Nov 19
 1 646: Consumer Reports_1982-2003/Oct
 5 647: CMP Computer Fulltext_1988-2003/Nov W3
 9 649: Gale Group Newswire ASAP(TM)_2003/Nov 19
 2 652: US Patents Fulltext_1971-1975

Processing
 Processing
 Processing

27 654: US Pat.Fulll._1976-2003/Nov 18
 1 674: Computer News Fulltext_1989-2003/Nov W2

Examined 450 files

1 696: DIALOG Telecom. Newsletters_1995-2003/Nov 21
 3 702: Miami Herald_1983-2003/Oct 24
 1 704: (Portland)The Oregonian_1989-2003/Nov 21
 2 706: (New Orleans)Times Picayune_1989-2003/Nov 21
 6 707: The Seattle Times_1989-2003/Nov 21
 2 708: Akron Beacon Journal_1989-2003/Nov 21
 1 709: Richmond Times-Disp._1989-2003/Nov 18
 1 711: Independent(London)_Sep_1988-2003/Nov 22
 1 713: Atlanta J/Const._1989-2003/Nov 22
 1 714: (Baltimore) The Sun_1990-2003/Nov 21
 4 716: Daily News Of L.A._1989-2003/Nov 21
 3 717: The Washington Times_Jun_1989-2003/Nov 20
 2 718: Pittsburgh Post-Gazette_Jun_1990-2003/Nov 22
 6 719: (Albany) The Times Union_Mar_1986-2003/Nov 21
 2 721: Lexington Hrld.-Ldr._1990-2003/Nov 21
 2 722: Cincinnati/Kentucky Post_1990-2003/Nov 20
 1 724: (Minneapolis)Star Tribune_1989-1996/Feb 04
 1 726: S.China Morn.Post_1992--2003/Nov 21
 16 727: Canadian Newspapers_1990-2003/Nov 22
 1 728: Asia/Pac News_1994-2003/Nov W3
 1 731: Philad.Dly.News_1983- 2003/Nov 18
 3 732: San Francisco Exam._1990- 2000/Nov 21
 1 733: The Buffalo News_1990- 2003/Nov 20
 2 738: (Allentown) The Morning Call_1990-2003/Nov 21
 1 739: The Fresno Bee_1990-2003/Nov 21
 1 741: (Norfolk)Led./Pil._1990-2003/Nov 20
 5 743: (New Jersey)The Record_1989-2003/Nov 21

Examined 500 files

1 755: New Zealand Newspapers_1995-2003/Nov 21
 1 763: Freedonia Market Res._1990-2003/Nov
 2 764: BCC Market Research_1989-2003/Nov
 8 765: Frost & Sullivan_1992-1999/Apr
 1 781: ProQuest Newsstand_1998-2003/Nov 22
 1 802: ONTAP(R) Boston Globe
 7 810: Business Wire_1986-1999/Feb 28
 15 813: PR Newswire_1987-1999/Apr 30
 2 816: Canada NewsWire_1996-1999/Jun 24

Examined 550 files

92 files have one or more items; file list includes 551 files.
 One or more terms were invalid in 104 files.

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Set	Items	Description
S1	343	((TRACK? OR FOLLOW? OR POLL? OR RECORD?)(4N)(PATH OR PATHS OR LOCATION? ? OR ROUTE OR ROUTES)(4N)(CAR OR CARS OR AUTOMOBILE? ? OR VEHICLE? ? OR TRUCK? ?)) AND (TOLL OR TOLLS) AND PY- =<1997
S2	256	RD (unique items)
S3	121	((TRACK? OR FOLLOW? OR POLL? OR RECORD?)(4N)(PATH OR PATHS OR LOCATION? ? OR ROUTE OR ROUTES)(4N)(CAR OR CARS OR AUTOMOBILE? ? OR VEHICLE? ? OR TRUCK? ?)(10N)(TOLL OR TOLLS)) AND PY- =<1997
S4	86	RD (unique items) <i>-Kurt</i>
File	9:Business & Industry(R)	Jul/1994-2003/Nov 20 (c) 2003 Resp. DB Svcs.
File	13:BAMP 2003/Nov W3	(c) 2003 Resp. DB Svcs.
File	15:ABI/Inform(R)	1971-2003/Nov 20 (c) 2003 ProQuest Info&Learning
File	16:Gale Group PROMT(R)	1990-2003/Nov 21 (c) 2003 The Gale Group
File	18:Gale Group F&S Index(R)	1988-2003/Nov 24 (c) 2003 The Gale Group
File	47:Gale Group Magazine DB(TM)	1959-2003/Nov 21 (c) 2003 The Gale group
File	63:Transport Res(TRIS)	1970-2003/Oct (c) fmt only 2003 Dialog Corp.
File	80:TGG Aerospace/Def.Mkts(R)	1986-2003/Nov 21 (c) 2003 The Gale Group
File	88:Gale Group Business A.R.T.S.	1976-2003/Nov 20 (c) 2003 The Gale Group
File	141:Readers Guide	1983-2003/Oct (c) 2003 The HW Wilson Co
File	148:Gale Group Trade & Industry DB	1976-2003/Nov 24 (c)2003 The Gale Group
File	149:TGG Health&Wellness DB(SM)	1976-2003/Nov W1 (c) 2003 The Gale Group
File	180:Federal Register	1985-2003/Nov 20 (c) 2003 format only The DIALOG Corp
File	262:CBCA Fulltext	1982-2003/Nov (c) 2003 Micromedia Ltd.
File	264:DIALOG Defense Newsletters	1989-2003/Nov 21 (c) 2003 The Dialog Corp.
File	275:Gale Group Computer DB(TM)	1983-2003/Nov 21 (c) 2003 The Gale Group
File	340:CLAIMS(R)/US Patent	1950-03/Nov 18 (c) 2003 IFI/CLAIMS(R)
File	342:Derwent Patents Citation Indx	1978-01/20035354 (c)2003 Thomson Derwent
File	345:Inpadoc/Fam. & Legal Stat	1968-2003/UD=200345 (c) 2003 EPO
File	348:EUROPEAN PATENTS	1978-2003/Nov W03 (c) 2003 European Patent Office
File	349:PCT FULLTEXT	1979-2002/UB=20031120,UT=20031113 (c) 2003 WIPO/Univentio
File	387:The Denver Post	1994-2003/Nov 21 (c) 2003 Denver Post
File	474:New York Times Abs	1969-2003/Nov 21 (c) 2003 The New York Times
File	475:Wall Street Journal Abs	1973-2003/Nov 20 (c) 2003 The New York Times
File	476:Financial Times Fulltext	1982-2003/Nov 22 (c) 2003 Financial Times Ltd

File 484:Periodical Abs Plustext 1986-2003/Nov W3
 (c) 2003 ProQuest
 File 486: Press-Telegram 1992- 2003/Nov 20
 (c) 2003 Long Beach Press-Telegram
 File 487:Columbus Ledger-Enquirer 1994-2003/Nov 21
 (c) 2003 R. W. Page Corp.
 File 492:Arizona Repub/Phoenix Gaz 19862002/Jan 06
 (c) 2002 Phoenix Newspapers
 File 494:St LouisPost-Dispatch 1988-2003/Nov 20
 (c) 2003 St Louis Post-Dispatch
 File 498:Detroit Free Press 1987-2003/Nov 21
 (c) 2003 Detroit Free Press Inc.
 File 536:(GARY) POST-TRIBUNE 1992-1999/Dec 30
 (c) 2000 POST-TRIBUNE
 File 542:SEC Online(TM) 10-K Reports 1997/Sep W3
 (c) 1987-1997 SEC Online Inc.
 File 545:Investext(R) 1982-2003/Nov 22
 (c) 2003 Thomson Financial Networks
 File 553:Wilson Bus. Abs. FullText 1982-2003/Oct
 (c) 2003 The HW Wilson Co
 File 570:Gale Group MARS(R) 1984-2003/Nov 24
 (c) 2003 The Gale Group
 File 608:KR/T Bus.News. 1992-2003/Nov 22
 (c)2003 Knight Ridder/Tribune Bus News
 File 619:Asia Intelligence Wire 1995-2003/Nov 21
 (c) 2003 Fin. Times Ltd
 File 621:Gale Group New Prod.Annou.(R) 1985-2003/Nov 24
 (c) 2003 The Gale Group
 File 624:McGraw-Hill Publications 1985-2003/Nov 21
 (c) 2003 McGraw-Hill Co. Inc
 File 631:Boston Globe 1980-2003/Nov 21
 (c) 2003 Boston Globe
 File 633:Phil.Inquirer 1983-2003/Nov 18
 (c) 2003 Philadelphia Newspapers Inc
 File 634:San Jose Mercury Jun 1985-2003/Nov 21
 (c) 2003 San Jose Mercury News
 File 635:Business Dateline(R) 1985-2003/Nov 20
 (c) 2003 ProQuest Info&Learning
 File 636:Gale Group Newsletter DB(TM) 1987-2003/Nov 21
 (c) 2003 The Gale Group
 File 637:Journal of Commerce 1986-2003/Nov 24
 (c) 2003 Commonwealth Bus. Media
 File 638:Newsday/New York Newsday 1987-2003/Nov 20
 (c) 2003 Newsday Inc.
 File 641:Rocky Mountain News Jun 1989-2003/Nov 19
 (c) 2003 Scripps Howard News
 File 642:The Charlotte Observer 1988-2003/Nov 21
 (c) 2003 Charlotte Observer
 File 645:Contra Costa Papers 1995- 2003/Nov 19
 (c) 2003 Contra Costa Newspapers
 File 646:Consumer Reports 1982-2003/Oct
 (c) 2003 Consumer Union
 File 647:CMP Computer Fulltext 1988-2003/Nov W3
 (c) 2003 CMP Media, LLC
 File 649:Gale Group Newswire ASAP(TM) 2003/Nov 19
 (c) 2003 The Gale Group
 File 652:US Patents Fulltext 1971-1975
 (c) format only 2002 The Dialog Corp.
 File 654:US Pat.Full. 1976-2003/Nov 18
 (c) Format only 2003 The Dialog Corp.
 File 674:Computer News Fulltext 1989-2003/Nov W2

(c) 2003 IDG Communications
File 696:DIALOG Telecom. Newsletters 1995-2003/Nov 21
(c) 2003 The Dialog Corp.
File 702:Miami Herald 1983-2003/Oct 24
(c) 2003 The Miami Herald Publishing Co.
File 704:(Portland)The Oregonian 1989-2003/Nov 21
(c) 2003 The Oregonian
File 706:(New Orleans)Times Picayune 1989-2003/Nov 22
(c) 2003 Times Picayune
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Set	Items	Description
S1	29	((TRACK? OR FOLLOW? OR POLL? OR RECORD?)(4N)(PATH OR PATHS OR LOCATION? ? OR ROUTE OR ROUTES)(4N)(CAR OR CARS OR AUTOMOBILE? ? OR VEHICLE? ? OR TRUCK? ?)(10N)(TOLL OR TOLLS)) AND PY- =<1997
S2	28	RD (unique items) <i>-KWC</i>
File 707:		The Seattle Times 1989-2003/Nov 21 (c) 2003 Seattle Times
File 708:		Akron Beacon Journal 1989-2003/Nov 21 (c) 2003 Akron Beacon Journal
File 709:		Richmond Times-Disp. 1989-2003/Nov 18 (c) 2003 Richmond Newspapers Inc
File 711:		Independent(London) Sep 1988-2003/Nov 22 (c) 2003 Newspaper Publ. PLC
File 713:		Atlanta J/Const. 1989-2003/Nov 22 (c) 2003 Atlanta Newspapers
File 714:		(Baltimore) The Sun 1990-2003/Nov 21 (c) 2003 Baltimore Sun
File 716:		Daily News Of L.A. 1989-2003/Nov 21 (c) 2003 Daily News of Los Angeles
File 717:		The Washington Times Jun 1989-2003/Nov 20 (c) 2003 Washington Times
File 718:		Pittsburgh Post-Gazette Jun 1990-2003/Nov 22 (c) 2003 PG Publishing
File 719:		(Albany) The Times Union Mar 1986-2003/Nov 21 (c) 2003 Times Union
File 721:		Lexington Hrlld.-Ldr. 1990-2003/Nov 21 (c) 2003 Lexington Herald-Leader
File 722:		Cincinnati/Kentucky Post 1990-2003/Nov 20 (c) 2003 The Cincinnati Post
File 724:		(Minneapolis)Star Tribune 1989-1996/Feb 04 (c) 1996 Star Tribune
File 726:		S.China Morn.Post 1992--2003/Nov 21 (c) 2003 South China Morning Post
File 727:		Canadian Newspapers 1990-2003/Nov 22 (c) 2003 Southam Inc.
File 728:		Asia/Pac News 1994-2003/Nov W3 (c) 2003 Dialog Corporation
File 731:		Philad.Dly.News 1983- 2003/Nov 18 (c) 2003 Philadelphia Newspapers Inc
File 732:		San Francisco Exam. 1990- 2000/Nov 21 (c) 2000 San Francisco Examiner
File 733:		The Buffalo News 1990- 2003/Nov 20 (c) 2003 Buffalo News
File 738:		(Allentown) The Morning Call 1990-2003/Nov 21 (c) 2003 Morning Call
File 739:		The Fresno Bee 1990-2003/Nov 21 (c) 2003 The Fresno Bee
File 741:		(Norfolk)Led./Pil. 1990-2003/Nov 20 (c) 2003 Virg.-Pilot/Led.-Star
File 743:		(New Jersey)The Record 1989-2003/Nov 21 (c) 2003 No.Jersey Media G Inc
File 755:		New Zealand Newspapers 1995-2003/Nov 21 (c) Fairfax New Zealand Ltd.
File 763:		Freedonia Market Res. 1990-2003/Nov (c) 2003 Freedonia Group Inc.
File 764:		BCC Market Research 1989-2003/Nov (c) 2003 Business Communication Co.
File 765:		Frost & Sullivan 1992-1999/Apr (c) 1999 Frost & Sullivan Inc.
File 781:		ProQuest Newsstand 1998-2003/Nov 22

(c) 2003 ProQuest Info&Learning
File 802:ONTAP(R) Boston Globe
(c) 1990 Boston Globe
File 810:Business Wire 1986-1999/Feb 28
(c) 1999 Business Wire
File 813:PR Newswire 1987-1999/Apr 30
(c) 1999 PR Newswire Association Inc
File 816:Canada NewsWire 1996-1999/Jun 24
(c) 1999 Canada NewsWire
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2/9/18 (Item 1 from file: 765)
DIALOG(R)File 765:Frost & Sullivan
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**FORECASTS OF THE ADVANCED TRAFFIC MANAGEMENT SYSTEMS MARKET: Market
Definitions and Overview (2/3)**

Main Title: U.S. INTELLIGENT TRANSPORTATION SYSTEM (ITS) MARKETS
Pub. Date: May 1995
Source: Frost & Sullivan
Telephone: US (415) 961 - 1000; London 071 730 3438
Word Count: 427 (1 pp.)
Language: English

The ATMS market segment could be considered in very broad terms, but for logistical reasons, ATMS has been more precisely defined for this study. Specifically, the ATMS market is defined as including:

In-vehicle electronic toll collection equipment
Traffic light control/synchronization systems

Roadside infrastructure directly required for traffic management center (TMC) operations, not including beacons used specifically for advanced traveler information systems (ATIS) transmissions

The figures represent capital expenditures and equipment costs only, with installation, operations and repair expenses not included.

Correctly functioning ATMS should reduce air pollution, fuel consumption, traffic congestion, and travel times. These benefits have been quantified in a number of studies, including an analysis of an improved signal system deployed at 365 intersections in Orlando, Florida. This particular system was estimated to have saved \$2.2 million in fuel, reduced vehicle delays 56 percent, and lowered air-pollutants between 9 and 14 percent.

If ATMS is deployed on a substantial scale nationwide, similar benefits are likely to be seen in numerous metropolitan areas, bringing even greater positive results.

Specific systems often use technology originally developed for military applications, such as spread spectrum radio and threat identification systems. These systems were originally used for target identification and other military applications. The technology is well-suited for conversion to transportation end-uses such as automatic **vehicle** identification and traffic congestion **tracking** and **location**.

Electronic **toll** collection (ETC) systems are designed to yield decreases in traffic congestion because **vehicles** need not stop to pay **toll** charges.

ETC systems use automated vehicle identification technologies and operate with either radio frequency, infrared, microwave, or other sensor equipment. In order to operate in all weather conditions, successful systems may also employ a combination of sensor types.

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DIALOG(R) File 15:ABI/Inform(R)

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00594810 92-09983

Intelligent Vehicles, Smart Satellites

Manuta, Lou

Satellite Communications v16n2 PP: 21-24 Feb 1992 CODEN: SACODH ISSN:
0147-7439 JRNL CODE: SAC

DOC TYPE: Journal article LANGUAGE: English LENGTH: 4 Pages

SPECIAL FEATURE: Diagrams

WORD COUNT: 2451

ABSTRACT: Future satellites will play a significant role in traffic management. Intelligent Vehicle Highway Systems (IVHS) are expected to reduce travel time in congested areas by as much as 50% and drop fuel consumption by 10% or more. IVHS refers to the development and application of electronics, communications, or information processing used to improve the efficiency and safety of surface transportation systems. The range of issues covered by IVHS runs from cruise control in today's vehicles to the highways of 30 years in the future, where powerful magnets will transport closely spaced cars at high speeds over long distances. According to Jonathan Arlook, director of software engineering for Navigation Technologies, satellites are a primary component of the Advanced Traveler Information System, and Commercial Vehicle Systems, 2 examples of IVHS. Satellites will be employed for tracking commercial truck fleets, managing traffic, and locating vehicles.

TEXT: Much attention has been focused on ways to aid congested city streets and highways in order to save fuel and time while increasing productivity. Projects are underway to have cars move on high speed interstate roads only inches apart and have computers take over all of the human driver's functions. On-board video screens will someday not only be used to map out trips, but they will constantly update the driver of changes in road conditions due to accidents or heavy traffic to permit the driver to take an alternate route.

Satellites will play a significant role in the future of traffic management and will assist in reaching these goals.

A report released by the Government Accounting Office in May 1991 reveals that effective intelligent vehicle/highway systems (IVHS) could reduce travel time in congested areas by as much as 50 percent, drop fuel consumption ten percent or more through the elimination of delays and stops, and reduce emissions of pollutants from automobiles by up to fifteen percent. Realizing the important benefits to be derived from IVHS, in the highway bill recently signed by President Bush, congress has authorized \$659 million for IVHS research. The bill earmarks \$94 million in fiscal year 1992 and \$113 million per year for fiscal years 1993 through 1997 to support IVHS programs.

BENEFITS OF IVHS

IVHS refers to the development and application of electronics, communications, or information processing which are used to improve the efficiency and safety of surface transportation systems. The range of issues covered by IVHS runs from cruise control in today's cars and signs indicating traffic conditions along roadways to the highways of 30 years in the future where powerful magnets will transport closely-spaced cars at high speeds over long distances.

In a report released by the Federal Highway Administration, the FHWA states that IVHS can alleviate congestion on streets and highways using automated traffic control systems, such as signals, ramp meters, and reversible flow lanes, which are responsive to real-time conditions. Enhanced information can be made available to drivers on traffic incidents (accidents and break downs) and provide alternative route choices through systems both within the vehicles and improved traffic information along roadways. The report also states that highway safety operations can be improved through advisory, warning, and avoidance systems installed in vehicles. In addition, the FHWA believes that the efficiency of trucks and other highway vehicle fleets can be increased through vehicle identification, communications, and safety advisory systems. Finally, research is being conducted to provide safe and reliable vehicle operations at high speeds by fully automating vehicle control or partially automating backup systems for drivers.

According to a study by Mobility 2000, an ad hoc coalition of university, industry, and federal, state, and local government participants, the benefits from IVHS will be received by everyone. For example, the study states that fully deployed Advanced Traffic Management System (ATMS) and Advanced Traveler Information System (ATIS) combinations can reduce congestion costs in urban areas from 25 to 40 percent. ATMS refers to urban traffic control systems, highway and corridor control systems, incident detection systems, and ramp metering systems. ATIS provides the traveler with navigational information and routing advice based on real-time traffic data using audio or visual media contained in the vehicles. The use of this information will allow travelers to be more efficient in the use of the highway network through better route choice.

In addition to reducing traffic, the study envisions the amount of time saved as a result of ATMS and ATIS to grow substantially over the next few years and motor carrier productivity to significantly increase and fuel costs to decrease through automated toll collection, the provision of real-time routing information, and in-vehicle yellow pages services.

THE ROLE OF SATELLITES IN IVHS

According to Jonathan Arlook, director of software engineering for Navigation Technologies, satellites are a primary component of ATIS and Commercial Vehicle Systems. Satellites will be employed for tracking commercial truck fleets, managing traffic, and locating vehicles.

* Vehicle Tracking:

Commercial Vehicle Systems use Qualcomm radio determination satellites to track the location of individual commercial vehicles for national fleet management and automatic toll collection. Two-way messaging with a dispatcher at the trucking company is also possible over satellites.

* Traffic Management:

According to Don Savitt, manager of the advanced traffic management systems (ATMS) for the Hughes Ground Systems Group of General Motors, satellites can also be employed for traffic management purposes. Live surveillance through Very Small Aperture Terminal (VSAT) technology could speed the clearing of traffic incidents.

* Vehicle Location:

The navigation functions of the ATIS are bisected into route planning and calculation/route guidance. Global Positioning Satellites (GPS) are

employed in the guidance system only.

Using spherical geometry, vehicle location can be accurately measured by computing the time it takes for a signal to travel from the GPS satellites to the on-board GPS receiver. The GPS constellation currently has 16 satellites; when complete, the GPS network will include 20 satellites with four backups. While any of the satellites with line-of-sight coverage can be used to determine location, a minimum of three GPS satellites are needed to determine a vehicle's location in two dimensions, latitude and longitude. A fourth satellite can be used to also determine the altitude of the vehicle, which can assist finding the location in areas with varying elevation.

The GPS receiver manufactured by Trimble Navigation Ltd. measures only 2.75 inches by 2.75 inches by .75 inches and, according to director of vehicle tracking and navigation Bruce Noel, "will pick the best geometry of satellites that will give the best location information." Noel informs Satellite Communications that the GPS receiver alone "costs in the several hundred dollar range."

When the vehicle is traveling in an area with tall buildings (concrete canyons), dense trees, or a tunnel, more than three satellites are recommended to ensure the accuracy of the location since at least one satellite may be obstructed. In these situations, on-board systems called dead reckoning and map matching can extrapolate the vehicle's location based on the last known GPS reading.

Dead reckoning estimates a vehicle's position between known start and destination points based on the direction the vehicle is traveling. It requires a road compass/gyroscope and wheel sensors and is assisted by an on-board map. Accuracy can be hampered when the gyroscope drifts and needs to be recalibrated or when the wheel sensors lose their accuracy in situations where the vehicle is moved without being driven (such as on a ferry). As a result of the dead reckoning becoming inaccurate, map matching compares the information from the onboard map and the compass/wheel sensors to better locate the vehicle.

According to Dr. Jim Rillings, project manager for Travel Technology, or TravTek, the accuracy of GPS is hindered by selective availability. Selective availability is "noise" added to the position signal by the Department of Defense which degrades the accuracy by up to 100 meters for "national security purposes." Trimble has created a process called Differential GPS which is a methodology that corrects errors created by selective availability as well as signal degradation from natural sources, such as tropospheric interference. The Differential GPS computes the exact error and then subtracts the error from the location data received to produce a corrected location.

The cost of using GPS may be seen as prohibitive when the ATIS systems move beyond the experimental phase. It is possible that by that time developments in the accuracy of dead reckoning and map matching algorithms may make its use unnecessary.

IVHS PROGRAMS EMPLOYING SATELLITE TECHNOLOGY

HUGHES' LIVE SURVEILLANCE SYSTEM:

Hughes has entered into a new business venture, employing their knowledge from the aerospace industry, which will perform live surveillance of busy corridors.

Hughes started with the premise that the heart of traffic management is removing incidents in traffic as soon as possible and informing motorists

how to avoid the incident. On long highway systems, the cost of laying cable to perform this service would be astronomical. Hughes has developed a system to perform live surveillance of these roadways with the construction of video cameras and VSATs spaced approximately one-half mile apart. In order to improve their vantage point, the cameras would be mounted on top of signs for exits. Loop data, which counts the number of vehicles moving over a specific site, would be transmitted to the satellite and then to a traffic control center. When it appears that traffic at a particular location is not moving or is traveling unusually slow, the television camera would be turned on at that site to determine the cause of the slowdown in an attempt to immediately rectify the situation. Hughes would employ compression techniques used in their video conferencing business to save money on transponder space for the transmission of the video.

OMNITRACS:

OmniTRACS, manufactured by Qualcomm, has been in operation since 1988 and uses geostationary satellites for two-way data messaging and positioning of nationwide truck fleets. The purpose of OmniTRACS is to permit trucking dispatchers to know the general location of every member of the fleet. This knowledge will help minimize the number of empty loads as trucks that discharge their cargo can be instantly notified to make a new pickup in the same area. It employs QASPR technology, which stands for Qualcomm Automatic Satellite Position Reporting System, and is considered accurate to within 1,000 feet. Since OmniTRACS does not involve specific driving instructions (like ADVANCE) and is primarily employed for general locating, the QASPR technology is considered sufficiently accurate. According to Phil Jenquin, director of marketing for Qualcomm, even though OmniTRACS costs \$4,500 per truck, over 22,000 trucks have been equipped nationwide by approximately 140 different trucking companies. Each truck would be equipped with its own keyboard and four-line screen to send and receive messages while the dispatcher would have the messaging equipment as well as QASPR software location equipment.

Dick Bishop, an electronic engineer with the office of IVHS Research for the FHWA, tells Satellite Communications that the use of Low-Earth Orbiting (LEO) satellites in the near future will simplify this type of system, reduce the size of the antenna and receiver, require less power, and in turn, reduce costs. Jenquin adds that employing LEOs "will also permit voice transmission as well as data."

Within the next five years, Qualcomm expects that the trucking company's headquarters will be able to monitor IVHS activities such as automatic truck weighing, toll collection, and permitting with OmniTRACS equipment.

Qualcomm revealed in October a new system called SensorTRACS which can monitor vital information in both the truck and the trailer and transmit the information to the trucking headquarters via satellite. SensorTRACS has three primary components. The trip recording capability checks engine speed and RPM to conserve fuel. Oil pressure and water temperature are monitored in SensorTRACS' diagnostic mode. In addition, the temperature inside a refrigerated trailer can also be observed to ensure that the temperature does not go out of range or shut down completely. SensorTRACS, which requires OmniTRACS equipment to be operational, has already been equipped in over 6,000 trucks.

INTEGRATED RADIO SYSTEM:

The Dallas Area Rapid Transit (DART) will begin installing GPS receivers in its surface transportation fleet in March with a 24 month time frame for completion. The program, entitled Integrated Radio System (IRS), will involve 1,400 vehicles such as buses, vans, and transit police cars. As a

result of glass skyscrapers in the Dallas downtown area blocking GPS signals, IRS will employ conventional methods for tracking as well, such as a program to check the odometer in buses to rectify lapses in the GPS. Paul Ledwitz, manager of communications and signals for DART, states that IRS will enable the city to provide quicker responses for breakdowns, create a more exact bus schedule, provide additional security for passengers and operators, and assist in making management decisions on the needs for more vehicles.

Both Denver and Minneapolis are testing similar transit fleet tracking systems.

ADVANCE AND TRAVTEK:

ADVANCE, the Advanced Driver and Vehicle Advisory Navigation Concept, is a cooperative effort between the Illinois Department of Transportation, Motorola, the Illinois Universities Transportation Research Consortium, and the FHWA. The ADVANCE test involves the largest dynamic route guidance system in the United States and will encompass a 200 square-mile area in the northwest suburbs of Chicago. Driver recruitment is expected to begin in the Spring. Eventually, 5,000 cars are expected to be equipped with the ADVANCE system. The five-year project is expected to cost between \$35 and \$40 million. Funding will come 50 percent from the FHWA, 25 percent from the state DOT, and 25 percent from the private sector, including the universities and Motorola.

ADVANCE uses in-vehicle navigation and route guidance systems. GPS satellites will be used in conjunction with GPS receivers installed in the vehicles, along with a map of the project area stored in the vehicle, to track the vehicles exact location within the network. Due to the urban environment, ADVANCE will employ between five and six satellites to increase accuracy.

During the trip, route guidance information will be displayed on the video screen in easy to understand visual cues. such as arrows, and a synthesized voice. Current traffic information will be gathered from and transmitted to ADVANCE vehicles over a dedicated RF communications system. The vehicles themselves will be the primary source of real-time traffic information as they will function as roving traffic probes automatically reporting unusual traffic conditions. Two computers at the Traffic Information Center will combine and process the data from the vehicle probes, reports from police and other agencies, and sensors in the roadway in order to determine traffic times and other roadway conditions.

TravTek is similar to the ADVANCE test, but is being conducted in Orlando by General Motors, the American Automobile Association, the FHWA, the Florida Department of Transportation, and the city of Orlando. It will employ 100 rental cars equipped with a GM/Hughes GPS receiver as well as dead reckoning equipment. According to Rillings, there will be 22 hour-a-day satellite coverage and up to five GPS satellites will be used to determine location. The price for a TravTek rental will not be more expensive than other rented cars. TravTek will provide the combination of a freeway management system, vehicle routing and location capability, travel services (such as yellow pages on a video monitor), and two-way communications, to aid motorists within the metropolitan Orlando area. This will be accomplished through the use of in-vehicle equipment, including a video screen, a GPS receiver, a microcomputer, and a radio for data communications. The test is slated to begin in early 1992 and will run for one year.

IVHS GOALS:

1. Reduce Travel Time in Congested Areas
Up to 50%

2. Reduce Auto Pollution
Up to 15%

3. Save Gas Consumption
Up to 10%

03947014/9

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Smart traffic spies have US covered

New Scientist, p9 .

August 5, 1995

ISSN: 0262-4079

Language: English Record Type: Abstract

Document Type: Magazine/Journal; Academic

ABSTRACT:

Campaigners advocating the right to privacy attended a workshop organized by the Intelligent Transportation Society (ITS) of America. The campaigners claimed that intelligent transport systems make it easier to spy on individuals by gathering too much data on them. Intelligent transport systems are being developed by thousands of companies to track vehicles, control traffic, automate toll payments, and give route information to motorists.

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ITS and semiconductor technology. (Intelligent Transportation Systems)

Holt, Dan

Automotive Engineering, v103, n11, p18(1)

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ISSN: 0098-2571

LANGUAGE: English

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ABSTRACT: Advancements in semiconductor technology are necessary to hasten the development of Intelligent Transportation Systems for the 21st century. Among the areas to focus on are traffic management systems, car platooning and location-based positioning. Common components across future systems are a microcontroller, a radio frequency section and processor.

TEXT:

At a recent Motorola meeting, Rajan Kumar, Director, Market Development and Engineering, Intelligent Transportation Systems, SPS World Marketing and Steve Shoap, Field Application Engineer, SPS World Marketing gave a briefing on ITS. Intelligent Transportation Systems (ITS) have been discussed for some time but these individuals put into perspective what electronics will be needed to accomplish the task. The vision of the U.S. DoT and ITS America for the first decade of the 21st century includes traffic management systems, car platooning, electronic toll collection, in-car communication, and a location-based technology with GPS and a cellular link of some type into the automobile. To achieve this vision, a roadmap of some sort must be followed and systems developed along the way. Specifically, three systems - navigation, radar, and toll collection - were discussed from the standpoint of how military-type technology can become practical for commercial use in ITS. A common tie among these systems is that each has a microcontroller, radio frequency section, and processor.

The current market for navigation systems is one-half million units in Japan plus 10,000 split between the U.S. and Europe. In the U.S., the majority of the market is currently commercial vehicles, rental cars, and other select cars. The predicted annual market in Japan is 3 million units with a market value of \$490 million. Enablers of the market in Japan are the lack of street names, and the numbers and landmarks being historical rather than sequential. In addition to a road-map type navigation system, the Japanese systems tend to have restaurants, hotels, and other such sites listed. The U.S. and European market enablers will be real-time traffic information. Future additions would be a vehicle tracking system connected into a head-up display and tied to collision avoidance with automatic braking.

Most of the navigation systems will use the Global Positioning System (GPS) which was created by the U.S. government at a cost of \$12 billion. GPS accuracy is rated at 100 m with the built-in military error left uncorrected and 30 m if the error is absent. Differential GPS accuracy is 2-10 m and with surveying techniques the accuracy is 1 cm. The total annual market for GPS, including all systems, is predicted to be \$790 million by the year 2000. The enablers for this market are size and cost, and there is a fast growth curve.

Looking at automotive navigation systems from an electronics standpoint, signals from the 24 GPS satellites are received by the antenna and RF sections and enter a correlator. Separated signals from each satellite enter the navigation processor, in which latitude and longitude are computed. Digitized maps are contained in a CD-ROM or PCMCIA card. Synthesized speech can give the driver step-by-step turn information. In the future, the driver may be able to give voice commands to the system via

speech recognition circuits.

Automotive radar systems are divided into two types - forward looking and near obstacle detection systems (NODS). Some trucks and buses currently have a rear warning system, with a basic cost of \$1500, that uses a light as a warning device. Between the years 1996-2002, the system cost should reach \$600-1000 for a system that includes an intelligent or adaptive cruise control. Between 2002-2006, a fully integrated system with intelligent cruise control that is capable of automated collision avoidance in terms of braking, velocity, and lateral control should be available. The enablers are acceptance and technology progression. Other potential uses for radar are pre-collision detection which can be used for air bag deployment, and road condition, chassis height, and ground velocity sensing for ABS and traction control.

From an electronics standpoint, an RF signal is transmitted and then its reflection from a target is received by the RF and IF circuits. After an analog to digital conversion, the digital signal processor computes the velocity of the target via the frequency shift (Doppler effect). In radar measurement systems, a one nanosecond frequency shift translates into 305 mm of distance. A microprocessor is used to classify and track targets and to warn the driver about hazards. The annual market by the year 2000 is \$260 million.

Since toll collection on highways often creates bottlenecks, automated toll collection systems are being investigated. If one lumps in radio frequency identification (RFID) and the use of a smartcard with electronic toll collection, the total annual market in the year 2000 is \$620 million if German autobahns get into the toll collection business, and \$350 million if they do not.

Smartcards are being considered as a single universal card which can be used to pay for tolls, parking, mass transit, vending machines, fuel, and fast-food. Australia is using a similar card today and Europe is trying a version. Dealers and auto manufacturers will be the drivers for RFID in the U.S. Imagine a lot full of snow-covered cars and trying to locate the right ones to ship. With RFID, a bar code on the window could be read through the snow. Also, RFID would allow for the coding of 30,000 components on a car for tracking purposes. Theoretically, one could fly over the car lot and determine its content and exact location. Recalls could be pinpointed to the exact vehicles with the problem components and save both time and money by not having to recall so many vehicles. Dealer service records for individual vehicles could be written into the RFID tag and easily be accessed at various dealer locations if service was required while traveling.

About \$23 billion of tolls are being collected worldwide - with the U.S. accounting for 16%, Japan for 64%, and Europe for 20%. Due to the high cost of creating new superhighways, it is thought that developing countries may allow private companies to build and maintain the roads. The roads might well then be paid for by tolls and thus require a faster and better toll collection system. Having a smartcard in the vehicle would allow a driver to pass through the electronic toll booths without stopping to pay the tolls.

In the electronics area, the smartcard I/C is a basic microcontroller unit with additional features to help secure the information in the memory.

With annual car production hovering between 14-15 million vehicles in the U.S. and the number of electronic components per vehicle, one can see why the electronics industry has tremendous growth potential. According to Tom A. Beaver, corporate Vice President and Assistant Director, Motorola SPS World Marketing, billions of semiconductors will be required to power the applications that are already known. The growth of the electronics industry has averaged 17% per year since 1970 and is approaching \$300 billion by the year 2000. Is the trillion dollar horizon near? Tom Beaver thinks so!

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08318447 SUPPLIER NUMBER: 17830818 (THIS IS THE FULL TEXT)
**CONGESTION, LOST PRODUCTIVITY, LOST LIVES CREATES NEED FOR INTELLIGENT
TRANSPORTATION**

PR Newswire, pl2111CLM005

Dec 11, 1995

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 393 LINE COUNT: 00041

TEXT:

COLUMBUS, Ohio, Dec. 11 /PRNewswire/ -- Why is the federal government paying \$14 million for a 17-week Intelligent Transportation System demonstration in Atlanta?

The answer is an easy one if you look at the lives and productivity lost in the U.S. each year to traffic congestion and accidents.

"The U.S. Department of Transportation estimates that American industry loses \$100 billion dollars a year because of increased traffic congestion," said David J. Mitchell, senior vice president of Battelle's Transportation Division.

"Traffic accidents claim the lives of 40,000 people in the United States each year. Couple that with 5 million injuries from accidents, and you're talking about an incredible number of dead and injured."

Traffic congestion is a problem for anyone who ventures out of their home. Battelle has been assisting the U.S. Department of Transportation and the Federal Highway Administration in developing Intelligent Transportation Systems that will save lives and alleviate congestion, which will in turn increase U.S. productivity.

The Intelligent Transportation Systems that Battelle has worked on include:

- Automated highways. Vehicles would be programmed automatically before entering the freeway. The driver would then relax while his or her car automatically followed a predetermined route.

- Automatic tolling booths. Cars will no longer stop at toll booths. Radio transceivers at the toll booths will read a transponder on a vehicle, and the owner will receive a monthly bill.

- Satellite mapping. Computers in vehicles will take information from satellites, giving drivers such information as their location, the distance to the next exit, and the amenities available at the exit.

- On-board, compact disk-based navigational devices.

Over the next 20 years, experts expect the U.S. government and private industry to invest \$220 billion in Intelligent Transportation Systems.

For more information, contact David J. Mitchell, senior vice president/Transportation Division, Battelle, 505 King Ave., Columbus, Ohio 43201-2693; telephone: 614-424-4929.

Battelle serves industry and government by developing, commercializing, and managing technology. With a wide range of scientific and technical capabilities, Battelle puts technology to work for clients in 30 countries.

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COMMERCIAL USE OF GPS

WORLD AEROSPACE WEEKLY

September 25, 1992 DOCUMENT TYPE: NEWSLETTER

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TEXT:

Used In Persian Gulf

The success of the US Air Force's NAVSTAR Global Positioning Satellite (GPS) system during the Persian Gulf War has generated a huge demand for GPS receivers in the civilian marketplace. These units are being incorporated into automobiles, marine vessels, and civilian aircraft.

Space-Based System

The NAVSTAR (Navigation System using Timing and Ranging) GPS system comprises a constellation of over 15 satellites in 12-hour, 55-degree circular orbits. When the GPS constellation is completed in several years (with 21 satellites and three in-orbit spares), the system is expected to provide 24-hour positioning data accurate to 15 meters.

IVHS

Earlier this year, the Intelligent Vehicle-Highway Systems (IVHS) Society of America submitted its Strategic Plan for IVHS to the US Department of Transportation that included plans for guidance research, development, and deployment of IVHS in commercial transportation applications during the next 20 years. The IVHS plan is a collection of technologies such as information processing, communications, control, and electronics, which, when combined in the overall system, will assist drivers through traffic. Some of the systems involve individual vehicles equipped with navigation systems directing drivers to the best possible route. Others are designed with a focus on mass transit, such as equipping buses with sensors to allow central dispatch operators to monitor the buses from computers in their offices.

Test Programs In Operation

Right now, there are some 35 IVHS operational test programs employing GPS for location determination information going on throughout the country. Motorola is working with the Illinois DoT in the Advanced Driver and Vehicle Advisory Navigation Concept (Advance) Program. In this program, private and commercial vehicles are equipped with onboard navigation and route guidance systems using GPS receivers to improve precise location identification.

TravTek

General Motors, the American Automobile Association, the Federal Highway Administration, and the Florida DoT are currently participating in the TravTek Program based in Orlando, Florida. TravTek is a year-long test of the nation's most advanced IVHS and depends on GPS receivers for position determination. So far it has been installed in 75 AAA member rental cars, while 25 cars have been assigned to local high-mileage drivers. Nearly 1,000 people have rented TravTek vehicles since its

launch in March 1992. The test has been so successful that the Institute of Transportation Engineers awarded TravTek the 1992 Transportation Achievement Award.

Reducing Congestion

IVHS Society of America estimates that cities adopting IVHS technologies could reduce their traffic congestion by as much as 20 percent by the year 2011. IVHS could reduce traffic fatalities by eight percent in that period, it said, which translates into 3,300 lives saved and 400,000 injuries avoided each year compared to current levels.

The following services are currently provided by IVHS trial systems in operation:

- * Gather and transmit information on traffic conditions and transit schedules for travelers;
- * Increase highway capacity by reducing traffic incidents, clearing them more quickly, rerouting traffic, and automatically collecting tolls;
- * Assist drivers in reaching their destinations through enhanced navigation systems with path-finding and route guidance; and
- * Improve productivity of commercial, transit, and public safety vehicles by using automated tracking and dispatch systems to reroute vehicles.

An Expensive Proposition

Developing and deploying IVHS nationwide during the next 20 years will cost about \$215 billion, the IVHS Society of America said, adding that some 80 percent of that cost will have to be paid for by the private sector. In 1991, \$660 million was allocated by the federal government for IVHS development under the Intermodal Surface Transportation Efficiency Act (ISTEA). Through the ISTEA, Congress requested that the DOT present a plan for IVHS, which in turn recruited the IVHS Society of America to write the strategy. According to IVHS Society of America executive director, Jim Costantino, "The strategic plan will serve as a road map for IVHS development, but it will be a living map that will change as new technologies evolve."

Remapping Potential

Another benefit of GPS technology, and perhaps one of the few positive outcomes from the 1992 summer Los Angeles riots, is the innovative use of GPS to help reconstruct the decimated sections of the city. After the riots, the California State Office of Emergency Services (OES) and the Federal Bureau of Land Management found maps of the city to be far from accurate. To overcome this deficiency, the OES is constructing new maps using the GeoResearch GeoLink system. This system uses GPS-generated position points and advanced software capabilities to produce a precise and detailed map of the entire area. The all-inclusive Los Angeles Riot Map will provide all local, state, and federal agencies involved in the redevelopment program with accurate and fully annotated locations for the destroyed areas. The OES originally undertook a mapping mission in July 1992 using a less powerful system; however, the results were not accurate enough.

"While each agency has its own map of the area, none of the current records are accurate enough to really establish what's out there now, who owns it, and what was there before the riot," said Dave Kehrlein,

OES project coordinator. OES also plans to use this GPS-generated mapping system to help establish effective procedures for responding to other emergency situations such as fires, floods, and earthquakes.

On An Historic Trail

An even more unusual use of GPS is being put to the test in mapping the actual route taken by the historic Lewis and Clack expedition. Sponsored by American Rivers, a non-profit organization, Tom Warren and photographer John Hilton are retracing Lewis and Clark's early trail by jetboat, canoe, and bike to compare campground sites, river beds, water conservation, and environmental concerns. Warren is using the Garmin GPS 100 receiver, the same receiver used by coalition forces in the Persian Gulf War, to pinpoint the campsites described by Lewis and Clark in their journals.

We want to stand on the same sites Lewis and Clark did 190 years ago," said Warren, "and for that, we need GPS to find their original locations." Warren and Hilton expect to finish their journey by mid-fall of 1992, covering in three months the same trip that took Lewis and Clark nearly two and a half years to complete.

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DOWN THE PIKE THE RATIONALE FOR TOLL ROADS: YOU GET WHAT YOU PAY FOR

Phoenix Gazette (PG) - WEDNESDAY, December 16, 1992

By: JOHN SEMMENS

Edition: Final Section: Editorial/Opinion Page: A19

Word Count: 724

MEMO:

MEMO: Semmens is the primary planner for privatization with the Arizona Department of Transportation. The views expressed here are those of the author and do not necessarily reflect department policy. They are taken from a report on highway privatization Semmens wrote for the Goldwater Institute of Arizona.

COLUMN: GUEST VOICE

TEXT:

In the next couple of months we will have the opportunity to make some significant progress toward the completion of the urban freeway system. There are several privatization proposals (one for the Pima Freeway, one for a tolled express lane on I-10, and one for completion of the whole system) on the table. The key to the implementation of any of these proposals is whether local governments are willing to accept them.

Before local governments can be persuaded to accept the idea of toll roads, several key questions will need to be answered.

--> Why do we need toll roads?

Existing taxes will not be sufficient to complete the promised urban freeway system. The half-cent sales tax enacted in 1985 will expire in 2006 with only about 70 miles of the planned 231-mile system completed. Regardless of whether people feel that in some sense they should get 231 miles for their money, the fact is they won't.

The real choice we face at this time is to either settle for the 70 miles that can be built with existing taxes, increase taxes, or charge tolls. There is no costless or painless option.

--> Won't toll roads make us pay twice for the same thing?

If we are to complete the system we will have to pay again. Whether that payment is in the form of higher taxes or tolls is the relevant question. As we have seen, with tax financing all we are guaranteed is the tax; there is no guarantee that the promised roads will actually be built.

With toll-financing, you get what you pay for. No payments are due until the road is built and you use it. This is the ultimate performance guarantee. Payment upon receipt of services is the market's way of ensuring that results are achieved. Unlike traditional tax-financing, you would not have to pay if the roads were not built.

--> Wouldn't paying tolls be time-consuming and inconvenient?

Modern technology makes stopping to pay tolls unnecessary. An electronic device little bigger than a credit card can be carried in the vehicle. This device automatically records the vehicle's travel past the

tolling location. The driver would be able to maintain full freeway speed. Payment would ultimately be made via a credit card or debit card arrangement.

--> Won't tolls add to traffic congestion?

So-called "free" roads provide little incentive for drivers to avoid causing congestion. Consequently, freeways become clogged during rush hours because more than 50 percent of rush hour traffic is not work/home commuting travel. Congestion-priced toll roads could encourage a shift in some non-commuting trips to less busy times of the day. So adding tolls will actually reduce traffic congestion.

--> Can we really afford to not choose the toll road option?

Consider the mess we would be in if we attempted to provide food in the same way we have tried to provide the urban freeway system. Instead of everyone buying their own food, everyone would be taxed and local politicians would decide who gets to eat.

Would we be surprised to find that some would be allowed to over-eat? Would we be surprised to find that a lot of money would be spent on storage space for food that we wouldn't be able to buy because the money ran out? Would we be surprised to find that a lot of food would be improperly prepared, half-baked and missing key ingredients?

This is precisely where we find ourselves now with the freeway program, having spent more than planned on upgrades of the early segments, having accumulated right-of-way that we cannot afford to build on, and having constructed several bits and pieces of unconnected road segments in dispersed parts of the Valley.

If we believe that highways are really investments in the future and we are serious about getting a return on this investment, we need to adopt a cost effective means of making this investment. Toll roads are the best option we have.

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DESCRIPTORS: COMMENTARY
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03321751 H.W. WILSON RECORD NUMBER: BWBA96071751 (THIS IS THE FULLTEXT)
**Faster than rush-hour gridlock! Stronger than a speeding NIMBY! It's ...
high-tech super-infrastructure!.**

Lyne, Jack

Site Selection (Site Sel) v. 41 (Aug. '96) p. 707-9

DOCUMENT TYPE: Feature Article ISSN: 1080-7799

LANGUAGE: English

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ABSTRACT: Although invisible infrastructure--such as smart cars and transportation systems--is a new technological development, it has considerable ramifications for business location patterns. For starters, it helps to address the public opposition that often accompanies firms' attempts to expand or locate new facilities. In addition, such leading-edge technology is easing traffic congestion, which represents a considerable business cost. "Intelligent transportation systems" are the best hope for solving the problems of gridlock. The business world's traffic woes could be alleviated by using present technologies and techniques: mass transit, home-based telecommuting, and more managed development. Specific infrastructure advancements are discussed.

TEXT:

You're driving in Boston's Back Bay area, and you -- and your company -- are in big-time trouble.

In 20 minutes, you've got a huge business meeting -- half your firm's annual revenue may be riding on it. And you've just entered ... Infrastructure Hell. Doom sounds on an orange sign bearing perhaps the world's most chilling words: "Under Construction."

You've hit a three-mile (4.8-km.) stretch of road where sewer lines are being replaced. As you mutter foul thoughts, a "Right Turn Only" lane sends your car into the jaws of traffic that could tie you up for hours -- all for a lousy three miles.

And then there's ... nothing. No ghastly orange pylons. No hard-hatted armies. Not even many visible holes -- and they're tiny compared to the Grand Canyons of traditional "cut-and-cover" methods.

The Boston work, it turns out, is primarily underground, largely unseen and unnoticed. As you saunter into your appointment a good 10 minutes early, you offer a quick thanks to the Infrastructure Gods (whether above or below, you're not sure).

FROM 'NIMBY' TO 'NUMBY'

Welcome to the world of high-tech infrastructure. New tools like "microtunneling" and "cured-in-place lining" (see chart) are making infrastructure development a far less fractious process.

But the new "invisible infrastructure" is more than merely non-intrusive. The Boston project will take only 18 months, reports Sewer Commission Chief Engineer John Sullivan Jr. Old methods would've required four or five years, he says.

Invisible infrastructure is a new technological twist, and its long-term effect is very much in a formative state. But it has substantial implications for business location patterns. In today's climate, companies needing new or improved infrastructure to expand or locate new facilities are often stymied by public opposition.

Consider Maine's recently abandoned Sears Island cargo port in

Augusta. Maine voters twice approved project bond issues. But the planned port became submerged in courtroom battles and often volatile public debates, with opposition including the Maine AFL-CIO, the Conservation Law Foundation, the Maine Green Party, the League of Women Voters, the Maine People's Alliance and the Sierra Club -- plus many others.

In theory, everyone favors infrastructure improvements -- better roads and less traffic congestion, safe, plentiful water, and effective waste disposal. "It directly relates to the livability of a city," says Charles McPhee, head of Howard Hughes Corp.'s commercial and industrial marketing and leasing. Without proper infrastructure, business -- and life in general -- rapidly become intolerable and, ultimately, insupportable.

Just ask the 750 employees at Siltec Corp.'s silicon wafer plant in Salem, Ore. A water shortage shut down many local businesses earlier this year.

"Our total losses were \$3 million," Environmental and Health Manager Mike Gotterba says. "The availability of pure water is one of the reasons we're here. When we have a situation like this, it's just not okay."

Okay, it's not okay; but when it comes to where to carry out infrastructure projects, ah, there's the rub. Opposition is so commonplace, it has its own well-worn acronym, NIMBY -- Not In My Backyard.

But high-tech infrastructure tools like those used in Boston throw NIMBY a baffling curve ball. Even the most skilled rabble rouser would be hard-pressed to rally opposition under the rubric of NUMBY -- Not Under My Backyard.

GRIDLOCK A 'NO. 1 ISSUE'

Leading-edge technology is also alleviating the traffic congestion bedeviling businesses around the world (see accompanying "Can You Say Global Congestion?"). More than a simple aggravation, gridlock is a substantial business cost.

"It's the No. 1 issue in the business community," says Colorado Interstate Gas Vice President Steve Coffin.

In Denver, for example, the estimated cost of traffic delays in overtime pay and wasted fuel is now more than US\$331 per capita, reports the Denver Regional Council of Governments -- more than double 1992's level of \$143.

Auto commutes also have a major impact on distribution costs, recruitment and retention, all major bottom-line concerns.

But while costly traffic woes swell, infrastructure funding is drying up in many parts of the world. "We have all the plans we need to carry all the people from where they are to where they want to go," says Rob Kerth, chairman of the Sacramento Area Council of Governments. "We just don't have the money to build the facilities."

Some observers even question whether building new highways will actually put an appreciable dent in steadily accelerating gridlock.

"Building more freeways to solve congestion is like loosening your belt to solve an obesity problem," says Phoenix City Councilman Craig Tribken.

The Phoenix area's Squaw Peak Freeway is an object lesson. When the freeway opened in 1990, traffic engineers predicted that it would carry 75,000 vehicles a day within 20 years -- instead, it took six months. Today, the roadway carries 150,000 vehicles a day.

HOT-WIRING GRIDLOCK

Given those formidable constraints, "intelligent transportation systems" may hold the best hope.

Using technology that the Federal Highway Administration's David Gendell describes as "still in its infancy," Maryland and Virginia are the first U.S. states selected by the federal government to develop high-tech

systems. Those schemes will speed travel for commercial trucks and buses.

Maryland's system uses space satellites to precisely track vehicles' locations. Eventually, trucks and buses will pay some road tolls electronically, eliminating costly stops. Electronic sensors will read identification stickers on vehicles' windshields, billing automatically.

Another technological boost in speeding products to market is unfolding in Oregon. A series of scales are being built into the road beds along some of the state's major highways. The scales will measure moving truck's weight and safety conditions. Only those failing the electronic test will be ordered to stop at inspection stations.

Tempe, Ariz., is one of many cities in the industrialized world installing self-adjusting traffic signals to facilitate flow. If traffic on a particularly route is heavy, the first stoplight's electronic sensors read conditions and adapt for longer green lights. Other signals on the route adjust accordingly.

The "seeing-eye" technology isn't cheap. A similar system at 1,000 traffic signals in Phoenix will cost an estimated \$5.5 million. But it's a smart investment, maintains Phoenix Transportation Director Jim Matteson: \$5.5 million, he says, would pave only two miles (3.2 km.) of arterial road.

THE STREETS OF LOS ANGELES

Perhaps the world leader in intelligent transportation is Los Angeles, where annual gridlock costs are estimated at \$7 billion. Begun as a pilot program at the 1984 Olympics, the city's Automated Traffic Surveillance and Control (ATSAC) system is now in place at 800 intersections. Already benefiting one-third of the city's population, the system will be expanded to all 4,000 signalized intersections by 1998.

ATSAC uses interrelated technologies to analyze and control flow. Buried sensors and remote-control cameras at key intersections collect information fed to computers at ATSAC's Control Center (described by one observer as "looking like something out of NASA").

Transportation engineers flag developing problems, adjust signal timing and search for causes for traffic disruptions (e.g., accidents, stalled vehicles, unexpected heavy volumes). Emergency vehicles are dispatched when needed to clear clogs. Drivers are alerted of quicker alternative routes via radio "traffic watches."

ATSAC has produced impressive results: An estimated 8 million auto stops at red lights have been eliminated, a 41 percent reduction. Air emissions have been cut by 26 percent, fuel consumption by 13 percent. Vehicle delays have dropped by 50,000 hours, a 32 percent reduction.

SMARTER CARS

Technology may not make drivers smarter, but it's upping their autos' traffic IQs. Sixty cars with in-car computers are being used in a pilot project in Phoenix. Traffic information is fed through radio waves onto dashboard-mounted PC screens. The technology costs \$1,000, though, and some traffic experts contend that \$100 systems using only audio or text are equally efficient.

Many of the business world's traffic woes could be lessened by using existing technologies and techniques: mass transit, home-based telecommuting and more managed development (see this issue's cover story).

But the United States, Henry Ford's home, has been particularly prone to automotive autonomy. Car pooling has steadily dropped over the last 10 years, from 20 percent to less than 13 percent. Baby boomers have exacerbated America's "car culture," says the Phoenix Regional Public Transportation Authority's Kathy DeBoer.

"The goal as you grow up is, when you turn 16, you get a car," DeBoer says. "And now you're asking me to give that up?"

Much of the Asia-Pacific and the European Community have "given that up," creating popular rapid-rail systems that have eased gridlock. Per-capita auto use in much of Western Europe is 20-55 percent below the U.S. level. Canadians also record less than half U.S. per-capita roadway mileage.

But changing deeply ingrained personal driving habits won't happen soon -- if ever. In the short run, technology may provide the best solutions for easing infrastructure strain.

Even technology's most ardent advocates, though, caution against expecting too much. (Remember the once-heralded "paperless office?")

"We must avoid overloading on technology where it isn't needed," says Maryland Highway Administrator Hal Kassoff, a national expert in high-tech traffic solutions. "We must be careful that what we put out there solves a problem.

"I guarantee we will fail in some areas. The key is to minimize mistakes, don't repeat them, and learn from them."

Added material

HIGH-TECH WIZARDRY

Here are a few of the technological tools making infrastructure improvements faster, cheaper and less disruptive.

Microtunneling: Its tiny tunnels mark a huge change from intrusive "cut-and-cover" methods. They're dug by a boring machine at street level, guided by an operator seated at a computer console. Laser beams precisely locate trouble spots.

Pipe Bursting: One-stop destruction/creation: A bullet-shaped, hydraulically powered tool shatters old piping, simultaneously pulling replacement pipes into place.

Cured-in-Place Lining: Pipes with only minor damage are untouched during repairs. Water pumped into felt sleeves inside the pipes is heated, which turns plastic resins in the sleeves into smooth fiberglass lining. Leakage is immediately sealed.

CAN YOU SAY GLOBAL CONGESTION?

The world's astonishing urbanization is not good infrastructure news for business. Prime locations in the developing world will likely be overwhelmed, according to a recent United Nations report.

By 2000, some 3 billion people will live in urbanized areas, the report says. Only 25 years later, the total will skyrocket to 4 billion.

For metros in developing nations, "it will be clearly impossible to keep pace with the need for transportation, sanitation, utilities, schools and hospitals as long as their populations double every 12 to 20 years," says Population Action International, a private advocacy group.

More from the UN report:

China's Crunch: China's explosive growth is overwhelming infrastructure. Roads can't handle auto traffic, much less hordes of horses, mules and tractors, plus millions of bicycles. Daredevil motorists now take any available pavement -- including sidewalks.

Hertz this year will unveil plans to become China's first Western rental car company. But it won't send neophyte drivers into the chaos. "Initially, anything that happens would be a chauffeur-driven service," says a Hertz spokesman.

Mexico City's Lessons: London's population took 130 years to go from 1 million to 8 million. Mexico City took 30 years, then redoubled in 1970-86.

Africa's Explosion: Nigeria's capital of Lagos underlines Africa's urbanization, now the world's fastest: Its 1950 population of 290,000 will total 21 million by 2010.

New York Gets Smaller: Once the world's largest city, New York likely won't make the top 10 by 2025, outstripped by rapidly growing metros like

Jakarta and Buenos Aries.

00171966/9

DIALOG(R) File 608:KR/T Bus.News.

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00171966 Story Number: 5201 (THIS IS THE FULLTEXT)

DETROIT FREE PRESS DAN GILLMOR COLUMN

Dan Gillmor

Detroit Free Press

October 18, 1993 13:47 E.T.

DOCUMENT TYPE: Newspaper RECORD TYPE: Fulltext LANGUAGE: English

WORD COUNT: 816

TEXT: Oct. 18--The next time you're stuck in stop-and-go traffic, steaming because you're late, consider the promise of smarter cars and highways. Then consider the possible impact on your privacy.

The idea behind intelligent vehicle highway systems - IVHS, the in-crowd acronym for smart cars and highways - is alluring. By using computers and other electronic gear, we could squeeze many more cars, trucks and buses onto existing highways and help everyone get where they're going more quickly and reliably.

IVHS is just one of the advances in communications and information technology that are transforming our lives. But it also could let government

and private snoops peer into our lives in new and scary ways.

"There is a lot of good that can come from IVHS if it's done right, but

there's also a need to assure that privacy and individual rights are maintained," says U.S. Rep. Bob Carr, D-Mich., a strong advocate of IVHS.

IVHS isn't a single technology. It's an expanding grab-bag of gadgets,

computers and brains. Among them:

An experiment now under way in Oakland County, Mich. Cameras keep track of traffic on major streets. They relay information to a computer that tells the traffic lights when to turn green, yellow and red. The result, according to road officials, is smoother-flowing traffic.

Projects in Europe and Japan. One is Prometheus, a European system designed to help cars avoid collisions, plus in-car computers that give information on how to steer around congestion.

Pathfinder, a California-based car-to-computer communication system that includes dashboard displays about upcoming traffic jams.

Proposals for electronic tolls - what economists and traffic planners generally agree would be an efficient way to reduce congestion and pay for upkeep. The reasoning, which makes sense to me, is that you should pay more to use the highway at rush hour than at 2 a.m. How would that be done? Highway and vehicle sensors, which wouldn't slow traffic like old-fashioned toll booths, would know when you use the road and bill you accordingly.

Those and other emerging IVHS technologies hold out the long-range promise of fully automatic highways and cars: You'd get into your car, tell it where you're going, and the car and the roads would do the rest.

Backers of IVHS include the Big Three automakers, Michigan's state government and its major universities. They see a potential mother lode - much of it likely to be mined from taxpayer's pocketbooks - as well as

public
benefits.

Let's think about this.

Assume for the moment that IVHS actually will work and be affordable.

What worries me, and ought to worry you, is how IVHS could be used to

pry

into your life. A rule of thumb: The smarter the system, the more Big-Brotherish it could be.

Specifically, the smarter the system, the more easily it'll be able to track your every move.

Oakland County's relatively primitive traffic-control system uses cameras, but officials with the county road commission say the cameras only sense motion. They don't monitor license plate numbers or take pictures of drivers.

Spy on motorists? "We're opposed to it and have no intention of getting into it," insists Brent Bair, managing director of the Road Commission for Oakland County. "We can't afford to get involved in stuff like that."

I believe him. But questions I'm raising aren't about what's here today, but what's coming tomorrow.

Bair thinks I'm being alarmist. I hope he's right. But suppose some future road officials decide to install new cameras and higher-capacity transmission lines, allowing the system to scan locations, license-plate numbers and drivers' faces into the computer.

And what about other IVHS systems that include communications devices in vehicles that talk with a central computer and get instructions on the best route. Will the computer keep records of where the car has been, and when?

These concerns apply to electronic tolls and just about all other IVHS technologies. Will the information be used solely for traffic control and billing? If not, who should have access to it, and for what purposes? We need to answer all of these questions now, not after the fact.

"Most people are honest and wouldn't misuse the information, but we do need protections, just in case," says Dale Rubin, professor of law at Willamette College of Law in Salem, Ore., and the author of several papers on IVHS issues.

I'm no Luddite who fears anything new; IVHS undoubtedly can make our lives better. Still, before we spend a few bazillion dollars on this brave new world of transportation, we should consider just how much liberty we're willing to trade for mobility and convenience.

Dan Gillmor can be reached by electronic mail through CompuServe (73240,334); the Internet (dgillmor("at")det-freepress.com); and America Online (dgillmor).

02840322/9

DIALOG(R)File 636:Gale Group Newsletter DB(TM)
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02840322 Supplier Number: 45759433 (THIS IS THE FULLTEXT)

Air Force Study on the Beam

Advanced Transportation Technology News, v2, n5, pN/A

Sept 1, 1995

ISSN: 1077-6877

Language: English Record Type: Fulltext

Document Type: Newsletter; Professional

Word Count: 448

TEXT:

The Air Force Automatic Identification Technology (AIT) Program Management Office (PMO, 4375 Chidlaw Rd., Suite 6, Wright-Patterson AFB, OH 45433; Tel: 513/257-4118) recently issued the results of its Radio Frequency Identification (RFID) market study.

The PMO sent questionnaires to 24 companies actively involved in the field and received responses from 10, including AT/Comm (Marblehead, MA), Intellitag (Dallas, TX), Texas Instruments (Austin, TX) and SAAB Combitech (Jonkoping, Sweden).

The study introduced the subject with a brief history of the bar code. It noted that while this form of identification is considered a significant contribution to the technology, it requires that labeled objects be located and brought to a reader to be identified. Bar coding does not allow for "self-location."

In covering the next advancement, Radio Frequency Identification (RFID), the report stated that this technology is used in applications that go far beyond the limits of bar codes. RFID labels, known as tags or transponders, can contain varying amounts of information ranging from a permanently stored ID number programmed into the tag at the factory to 128K bytes of read/write memory.

By using RF energy to communicate, information stored in the tag can be altered from a distance, and interrogators can be networked to provide nearly unlimited coverage for a system. Inexpensive read-only tags can be used for short-range applications, e.g., to track items moving through a production cycle.

Longer range tags are finding many applications in transportation. The study specifically mentioned vehicle identification and automatic toll collection and referred to the tagging of rail cars to provide real-time location information. It also cited trucking companies using these systems to track both vehicles and freight shipments.

The report said small, short range tags can cost up to \$20. Longer range read-only backscatter devices may cost from \$10-\$30, while read/write backscatter versions could run from \$30-\$75. Active read/write tags (battery required) are in the \$55-\$200 range, depending on features and memory amounts needed.

Interrogator unit costs vary from \$500 for short range use to \$2000 for an active tag interrogator, and up to \$8,000 for a backscatter interrogator.

At the time the study was being conducted, only one ANSI/ISO standard for RFID tags was in place and it applied to intermodal containers. Now two other national standards are in the making. These include a standard for Automatic Vehicle Identification (AVI) developed by ASTM, and a generic active RFID standard being developed by the X3T6 Committee of ANSI. California has published its own standard for AVI applications, and Kansas requires the California standard for use in its automatic toll collection system on the Kansas Turnpike.

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06738417 SUPPLIER NUMBER: 14542419 (THIS IS THE FULL TEXT)

Paving the road toward smarter highways, autos. (Special Report:

Automotive)

Clarke, George L.

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Oct 4, 1993

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RECORD TYPE: FULLTEXT

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TEXT:

California has been a national leader in transportation technology since the beginning of the freeway construction era. The foresight of the road designers of the 1930s and '40s helped create systems that have been expanded for decades. The designers' forward-thinking ideas have helped lay the groundwork for computer-driven "smart" highways and cars.

The challenge now is to continue building on the vision of those designers and bring Southern California's transportation system into the 21st century. The Automobile Club of Southern California believes the vision for our nation's freeways and cars is to make them "smarter" by increased use of current and new computer technology.

Much of the technology for smart cars and highways already exists. Many freeways have traffic-sensing systems, electronic message signs and some automatic toll-collection systems. Many late-model cars have their engine and braking systems controlled by computers. Just look at the popularity and effectiveness of cruise control and anti-lock brakes.

San Diego is taking a lead in smart-highway technology with the construction of a Traffic Management Center, which is expected to be operational by the end of the decade. This center is part of a comprehensive traffic management plan that will cover 211 miles of San Diego County freeways at a cost of about \$73 million. The plan is designed to significantly reduce freeway congestion, improve air quality and increase freeway capacity.

Under the current freeway system, the state Department of Transportation estimates that San Diego motorists experience 5 million vehicle hours of delay each year while traveling on local freeways, and this number is expected to triple by the year 2005. Under the proposed plan, a reduction of 5.5 million vehicle hours is expected, with corresponding reduction in fuel consumption and accidents.

Traffic Management

San Diego's traffic management plan will provide information to motorists through the use of 15 changeable message signs that display up-to-date traffic information; underpavement detectors installed on freeway lanes to identify locations of traffic congestion; closed-circuit television located at major interchanges to aid in the assessment of traffic tie-ups; a ramp metering system installed at 170 additional locations in the county; and an increased use of in-vehicle computers.

Creating smarter cars and highways has great potential for reducing or even eliminating traffic accidents, increasing highway capacity and reducing delays. Such systems could double or even triple capacity on the current freeway system and still help everyone move faster. Benefits would also extend to increased safety for pedestrians, improved air quality, potential fuel savings and more mobility for older and physically disadvantaged motorists.

It is estimated that just the simpler forms of smart cars and highways, such as on-board navigation systems, could cut traffic congestion by 15 percent, and fully deployed systems could cut it by 40 percent. Full automation could virtually eliminate traffic congestion. In fact, it is

already being predicted that, by the year 2025, a substantial portion of Southern California's freeways will have fully automated lanes -- a system known as "hands off" driving where the road effectively drives the car.

Much of the technology needed to make smart cars and highways a reality was developed through years of research in the defense and aerospace industries. The challenge now is to reassemble the technology in a package suitable for transportation. Such a conversion to the consumer market could provide a much needed economic boom to the San Diego area, for many of the major companies and laboratories that would be affected are located here. Meanwhile, the testing of these systems continues.

In San Diego, an ongoing experiment using smart cars has taken place in the car pool lanes on the I-15 freeway. In this experiment, four-car "platoons" travel at or above freeway speed limits and at close intervals to test how swiftly, closely and safely groups of cars can operate. The cars in the platoon are linked constantly by radar and maintain spacing in a convoy despite changes in speed and acceleration.

In this type of system, the smart cars are able to automatically apply the brakes or even stop to avoid a collision. The platooning experiment could also help drivers stay within a lane and maintain a safe distance from other vehicles.

Another example of smart-car technology is the recently completed "TravTek" experiment in central Florida, in which General Motors, the Federal Highway Administration and the American Automobile Association worked in partnership. Tourists and business travelers who rented one of the 100 custom-equipped General Motors vehicles furnished with on-board computers were provided navigation assistance, up-to-the-minute traffic information, route suggestions and information about hotels and restaurants via electronic video maps, symbolic video displays and a synthesized voice.

One of the largest "smart highway" experiments in Southern California is the \$50 million "Smart Corridor" project, which is expected to be operational in the spring of 1994. It will use electronic changeable message signs and ramp metering to direct traffic over a 12-mile segment of the Santa Monica Freeway (I-10) in Los Angeles.

Another system already proving useful on toll roads is electronic identification, in which electronic devices on vehicles and in the road track the time and location of a vehicle's passage. These types of devices have greatly reduced delays and traffic congestion by eliminating the need for motorists to stop or slow down their cars to pay a toll.

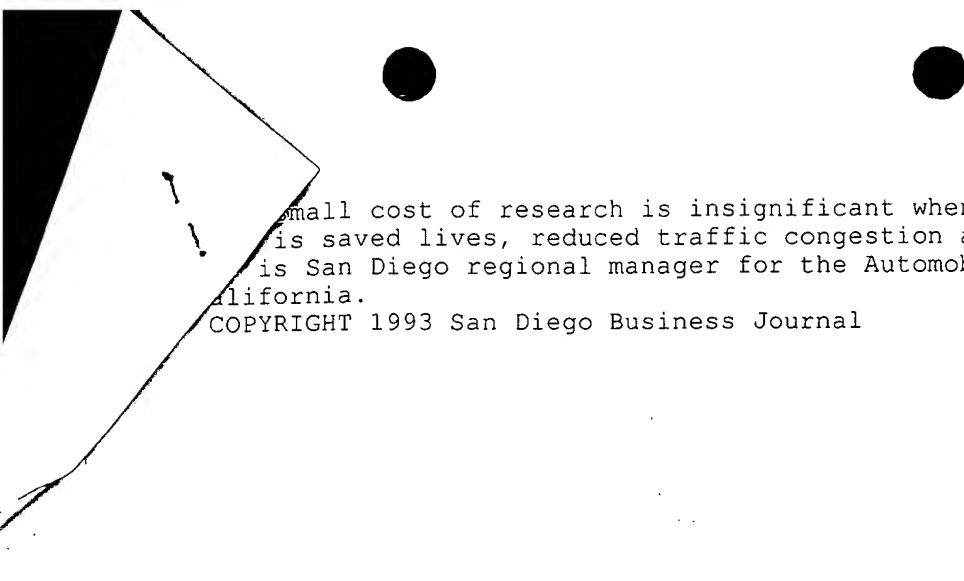
This system also has the capacity to generate a monthly bill to each motorist who passes through a toll gate. An early version of this technology was tested on the Coronado Bridge.

In support of on-going educational efforts in the transportation industry, this year the Auto Club sponsored one of 33 student engineering clinics researching Intelligent Vehicle Highways Systems at Harvey Mudd College, an undergraduate coeducational institution in Los Angeles County.

Because smart vehicles in the research operate in a semi- or fully-automated mode, the on-board systems that monitor the vehicles' condition are crucial. Student teams were asked to evaluate the cost effectiveness and feasibility of monitoring automobile systems such as tire tread and pressure, brake pad/rotor condition, brakes, cruise control and power-steering operations, as well as research data on car accidents. The work performed by the students will help prevent vehicle breakdowns that could destroy the safety and efficiency benefits of smart-car and highway systems.

Of course, all this high-tech gadgetry has a price. At least \$40 billion in public funds will be needed to pay for research, field testing and deployment of smart-car and highway systems nationwide during the next 20 years. This figure does not include the immense private sector funding that will undoubtedly foot a large part of the bill.

The Automobile Club of Southern California supports the continued research and application of smart-car and highway technology. The



Small cost of research is insignificant when what is gained
is saved lives, reduced traffic congestion and cleaner air.
is San Diego regional manager for the Automobile Club of
California.

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4/3,K/39 (Item 1 from file: 348)
DIALOG(R) File 348:EUROPEAN PATENTS
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00875598

Vehicle identification system for electric toll collection system
Fahrzeugidentifikationssystem für ein elektrisches Mautgebühreneinzugssystem

Système d'identification de véhicule pour un système électrique de perception de droits de péage

PATENT ASSIGNEE:

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(Proprietor designated states: all)

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PATENT (CC, No, Kind, Date): EP 802515 A1 971022 (Basic)

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APPLICATION (CC, No, Date): EP 97106105 970414;

PRIORITY (CC, No, Date): JP 9692765 960415

DESIGNATED STATES: DE; FR; IT

INTERNATIONAL PATENT CLASS: G08G-001/017

ABSTRACT WORD COUNT: 250

NOTE:

Figure number on first page: 9

LANGUAGE (Publication,Procedural,Application): English; English; English

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Available Text	Language	Update	Word Count
CLAIMS A	(English)	199710W3	1105
CLAIMS B	(English)	200143	1054
CLAIMS B	(German)	200143	850
CLAIMS B	(French)	200143	1141
SPEC A	(English)	199710W3	3857
SPEC B	(English)	200143	3836
Total word count - document A			4963
Total word count - document B			6881
Total word count - documents A + B			11844

...SPECIFICATION wave, a directional finder for measuring the direction of arrival of the radio wave, a **location** detection means for calculating the **location** of the **vehicle** based on the direction of arrival measured by the directional finder, a **vehicle tracking** means for calculating the locus of the **vehicle** based on the identification information of the **vehicle** outputted from the identification means and the **location** information of the **vehicle** outputted from the **location** detection means, a camera means for taking a picture of the **vehicle** and outputting a picture data, and a **toll** collection means for collecting a desired **toll** from the vehicle based on the locus data supplied from the vehicle tracking means and...not shown in the figure. In other words, the movement of the vehicle 10 is **tracked** by the **vehicle tracking** unit 140 (S105). The **tracking** processing by the **vehicle tracking** unit 140 is realized by storing successively **location** data in the memory device while **location** data of the **vehicle** 10 obtained every certain time interval from the **location** detector 130 are correlated for each **location** change by way of correlation processing.

Simultaneously with the processing for acquiring the locus data of the **vehicle** 10 described herein above, a video camera 150 that is a picture data collection means takes a picture of the **toll** collection area, and the picture data which includes the picture of the vehicle 10 which...

...SPECIFICATION identifying the vehicle which comes in a toll collection area and for collecting a prescribed **toll** from the vehicle in accordance with this embodiment of the present invention is additionally provided with a vehicle **tracking** means for calculating the locus of the **vehicle** based on the identification information of the **vehicle** outputted from the identification means and the **location** information of the **vehicle** outputted from the **location** detection means, a camera means for taking a picture of the **vehicle** and outputting picture data, and a **toll** collection means for collecting a desired toll from the vehicle based on the locus data...not shown in the figure. In other words, the movement of the vehicle 10 is **tracked** by the **vehicle tracking** unit 140 (S105). The **tracking** processing by the **vehicle tracking** unit 140 is realized by storing successively **location** data in the memory device while **location** data of the **vehicle** 10 obtained every certain time interval from the **location** detector 130 are correlated for each **location** change by way of correlation processing.

Simultaneously with the processing for acquiring the locus data of the **vehicle** 10 described herein above, a video camera 150 that is a picture data collection means takes a picture of the **toll** collection area, and the picture data which includes the picture of the vehicle 10 which...

...CLAIMS a directional finder (120) for measuring a direction of arrival of said radio wave,
a **location** detection means (130) for calculating the **location** of said **vehicle** based on the direction of arrival measured by said directional finder,
a **vehicle tracking** means (140) for calculating the locus of said **vehicle** based on an identification information of said **vehicle** outputted from said identification means and a **location** information of said **vehicle** outputted from said **location** detection means, and outputting locus data indicative of the locus of said **vehicle** ,
a camera means (150) for taking a picture of said vehicle and outputting a picture data, and
a **toll** collection means (170) for collecting a desired toll from said vehicle based on the locus...

...CLAIMS a toll collection area, and wherein said system is further adapted for collecting a prescribed **toll** from said vehicle, wherein said system further comprises
a vehicle **tracking** means (140) for calculating the locus of said **vehicle** based on an identification information of said **vehicle** outputted from said identification means and a **location** information of said **vehicle** outputted from said **location** detection means, and for outputting locus data indicative of the locus of said **vehicle** ,
a camera means (150) for taking a picture of said vehicle and outputting picture data...

4/3,K/74 (Item 2 from file: 654)
DIALOG(R)File 654:US Pat.Full.
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4095898 **IMAGE Available
Derwent Accession: 1995-023089

Utility

REASSIGNED

E/ Method and apparatus for the registration of a vehicle (s) in a free flow toll facility by tracking the vehicle along a path in the toll facility area

Inventor: Blomqvist, Kenneth, Jonkoping, SE
Hjelmare, Anders, Granna, SE
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Assignee: Saab-Scania Combitech Aktiebolag (03), Jonkoping, SE
Saab Scania Combitech AB SE

Examiner: Gross, Anita Pellman (Art Unit: 286)

Assistant Examiner: Lee, Michael G.

Combined Principal Attorneys: Donner, Irah H. Pepper Hamilton LLP

	Publication Number	Kind	Date	Application Number	Filing Date
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Main Patent	US 5859415	A	19990112	US 96553514	19960314
PCT	WO 9428516		19941208	WO 94SE504	19940527
			371:19960314		
			102e:19960314		
Priority				SE 931842	19930528
				SE 933203	19930930

Fulltext Word Count: 6788

Method and apparatus for the registration of a vehicle (s) in a free flow toll facility by tracking the vehicle along a path in the toll facility area

4/3,K/40 (Item 2 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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00871310

An automatic toll charging system and a vehicle-mounted unit used in the automatic toll charging system

System zum automatischen Erheben von Mautgebühren und eine im Fahrzeug eingebaute und in einem System zum automatischen Erheben von Mautgebühren verwendete Einheit

Systeme de taxation automatique des droits de peage et unite montee dans un vehicule et utilisee dans un systeme de taxation automatique des droits de peage

PATENT ASSIGNEE:

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Winter, Brandl, Furniss, Hubner, Ross, Kaiser, Polte Partnerschaft (100051), Patent- und Rechtsanwaltskanzlei Alois-Steinecker-Strasse 22, 85354 Freising, (DE)

PATENT (CC, No, Kind, Date): EP 798668 A2 971001 (Basic)

EP 798668 A3 990929

EP 798668 B1 030910

APPLICATION (CC, No, Date): EP 97105142 970326;

PRIORITY (CC, No, Date): JP 9674445 960328

DESIGNATED STATES: DE; FR; GB; IT

INTERNATIONAL PATENT CLASS: G07B-015/00

ABSTRACT WORD COUNT: 157

NOTE:

Figure number on first page: 2

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CLAIMS A	(English)	199709W4	1304
CLAIMS B	(English)	200337	1641
CLAIMS B	(German)	200337	1556
CLAIMS B	(French)	200337	1796
SPEC A	(English)	199709W4	4904
SPEC B	(English)	200337	5243
Total word count - document A			6210
Total word count - document B			10236
Total word count - documents A + B			16446

...SPECIFICATION above information to the vehicle-mounted unit 10; thereafter, the roadside unit 50 makes the **vehicle** -mounted unit 10 **record** the **toll** , the entrance information, and the **route** information as past **recorded** information in the IC card 20. If the IC card 20 is an prepayment card...

...SPECIFICATION above information to the vehicle-mounted unit 10; thereafter, the roadside unit 50 makes the **vehicle** -mounted unit 10 **record** the **toll** , the entrance information, and the **route** information as past **recorded** information in the IC card 20. If the IC card 20 is an pre-payment...

...CLAIMS further comprising:

a third roadside unit (40) disposed at a check barrier for checking a **route** of said **vehicle** along said **toll** road, and for transmitting **route** information to said **vehicle** -mounted unit when said **vehicle** passes through said check barrier;

wherein said **recording** means is for **recording** said **route** information transmitted from said third roadside unit, and said control means is for transmitting said **route** information **recorded** in said **recording** means to said second roadside unit disposed at said exit gate when said **vehicle** passes through said exit gate.

8. An automatic **toll** charging system according to claim 7, wherein said control means is for determining whether or...

...is route information which has not yet been used for said payment process in said **recording** means.

9. An automatic **toll** charging system according to claim 8, wherein said **vehicle** -mounted unit is for **recording** said **route** information which has not yet been used for said payment process in said information recording...

...CLAIMS further comprises:

a third roadside unit (40) disposed at a check barrier for checking a **route** of said **vehicle** along said **toll** road, and for transmitting **route** information to said **vehicle** -mounted unit (10) when said **vehicle** passes through said check barrier, wherein:

said **recording** means (13) is for **recording** said **route** information transmitted from said third roadside unit (40), and said control means (19) is for transmitting said **route** information **recorded** in said **recording** means (13) to said second roadside unit (50) disposed at said exit gate when said **vehicle** passes through said exit gate.

9. An automatic **toll** charging system according to claim 8, characterized in that said control means (19) is for...

...is route information which has not yet been used for said payment process in said **recording** means (13).

10. An automatic **toll** charging system according to claim 9, characterized in that said **vehicle** -mounted unit (10) is for **recording** said **route** information which has not yet been used for said payment process in said detachable information...

?

4/3,K/48 (Item 10 from file: 348)
DIALOG(R) File 348:EUROPEAN PATENTS
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00565486

TDMA network and protocol for reader-transponder communications and method.
Netz und Protokoll in TDMA-Verfahren zur Kommunikation mit
Lesetranspondern.

Reseau et protocole TDMA pour des communications de lecteurs-transpondeurs.

PATENT ASSIGNEE:

Hughes Aircraft Company, (214913), 7200 Hughes Terrace P.O. Box 45066,
Los Angeles, California 90045-0066, (US), (applicant designated states:
DE;FR;GB;NL)

INVENTOR:

Shloss, Peter D., 3442 Stanbridge Avenue, Long Beach, California 90808,
(US)

Friedman, Michael S., 5482 Catowba Lane, Irvine, California 92715, (US)

Feikema, Dale R., 3770 Alder Place, Chino Hills, California 91709, (US)

LEGAL REPRESENTATIVE:

Patentanwalte Grunecker, Kinkeldey, Stockmair & Partner (100721),
Maximilianstrasse 58, D-80538 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 565046 A2 931013 (Basic)

EP 565046 A3 950308

APPLICATION (CC, No, Date): EP 93105675 930406;

PRIORITY (CC, No, Date): US 864703 920407

DESIGNATED STATES: DE; FR; GB; NL

INTERNATIONAL PATENT CLASS: H04B-007/26; H04L-012/56;

ABSTRACT WORD COUNT: 224.

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	376
SPEC A	(English)	EPABF1	6224
Total word count - document A			6600
Total word count - document B			0
Total word count - documents A + B			6600

...SPECIFICATION been the case in the past. Therefore, the present
invention is useful in many Intelligent **Vehicle** Highway Systems for
applications such as electronic **toll** collection, **route** guidance
(display), traveler information (broadcast), and commercial fleet
tracking .

A simplified block diagram of the TDMA network 100 which discloses the
reader 112 and...

4/3,K/44 (Item 6 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2003 European Patent Office. All rts. reserv.

00741248

Vehicle-carried unit for automatic toll-paying systems and automatic toll-receiving apparatus

Fahrzeuggetragenes Gerat fur ein automatisches Strassengebuhrszahlssystem und automatisches Strassengebuhrempfangsgerat

Appareil pour payer des peages automatiquement fixe sur un vehicule et appareil pour recevoir des peages automatiquement

PATENT ASSIGNEE:

TOYOTA JIDOSHA KABUSHIKI KAISHA, (203741), 1, Toyota-cho Toyota-shi, Aichi-ken, (JP), (applicant designated states: DE;FR;GB)

INVENTOR:

Hayashi, Hironao, c/o Toyota Jidosha K.K., 1, Toyota-cho, Toyota-shi, Aichi-ken, (JP)

Goto, Ken, c/o Toyota Jidosha K.K., 1, Toyota-cho, Toyota-shi, Aichi-ken, (JP)

LEGAL REPRESENTATIVE:

Tiedtke, Harro, Dipl.-Ing. (11949), Patentanwaltsburo

Tiedtke-Buhling-Kinne & Partner Bavariaring 4, D-80336 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 700019 A1 960306 (Basic)

APPLICATION (CC, No, Date): EP 95112329 950804;

PRIORITY (CC, No, Date): JP 94184946 940805

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: G07B-015/00;

ABSTRACT WORD COUNT: 146

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPAB96	1000
SPEC A	(English)	EPAB96	10981
Total word count - document A			11981
Total word count - document B			0
Total word count - documents A + B			11981

...SPECIFICATION balance information cumulated in the storage circuit 48 is read in a step 430.

A **toll** is calculated by the signal processing circuit 46 in a step 432 on the basis of a **toll** table previously **recorded** in the **vehicle**-carried unit, entrance information received at the entrance gate and stored, **route** information received at a junction point and stored if there is any junction point, exit...

4/3,K/43 (Item 5 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2003 European Patent Office. All rts. reserv.

00795589

System for detecting the distance travelled by a vehicle in a given area
System zum Erfassen der von einem Fahrzeug in einem vorgegebenen Bereich
zurückgelegten Fahrstrecke

Systeme de detection de la distance parcourue par un vehicule dans une zone
predeterminee

PATENT ASSIGNEE:

ROBERT BOSCH GMBH, (200050), Postfach 30 02 20, 70442 Stuttgart, (DE),
(Proprietor designated states: all)

INVENTOR:

Blischke, Frank, Dr. Dr.-Ing., Richard-Wagner-Strasse 11, 31141
Hildesheim, (DE)

Gerlings, Karl-Heinz, Dipl.-Ing., Salzkamp 16, 38259 Salzgitter, (DE)

Fischer, Hans-Juergen, Dr. Dr.-Ing., Sensburger Ring 56A, 31141
Hildesheim, (DE)

Ohler, Michael, In der Dehne 4, 31035 Despetal, (DE)

Bassler, Rolf, Dipl.-Ing., Etzwiesenberg 3, 71522 Backnang, (DE)

Mongold, Ralf, Dipl.-Ing. (FH), Veilchenweg 2, 71384 Weinstadt 2, (DE)

PATENT (CC, No, Kind, Date): EP 741373 A2 961106 (Basic)

EP 741373 A3 990929

EP 741373 B1 030319

APPLICATION (CC, No, Date): EP 96106241 960420;

PRIORITY (CC, No, Date): DE 19516061 950504

DESIGNATED STATES: BE; CH; DE; FR; GB; LI

INTERNATIONAL PATENT CLASS: G07B-015/00; G07C-005/00

TRANSLATED ABSTRACT WORD COUNT: 148

ABSTRACT WORD COUNT: 150

NOTE:

Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): German; German; German

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(German)	EPAB96	345
CLAIMS B	(English)	200312	399
CLAIMS B	(German)	200312	360
CLAIMS B	(French)	200312	402
SPEC A	(German)	EPAB96	1715
SPEC B	(German)	200312	1778

Total word count - document A 2060

Total word count - document B 2939

Total word count - documents A + B 4999

...CLAIMS the distance travelled by a vehicle in a predefined area for the
purpose of charging **tolls** , having the **following** features:

- a **vehicle** device (FG) with which the distance travelled is
continuously measured independently of the respective **location** is
provided in the **vehicle** ,

- fixed stations (ASE, ASA) which have means for receiving data
emitted by a **vehicle** device (FG) are provided at least at the
entries to the predefined area and the...

4/3,K/8 (Item 6 from file: 15)

DIALOG(R)File 15:ABI/Inform(R)

(c) 2003 ProQuest Info&Learning. All rts. reserv.

00594810 92-09983

Intelligent Vehicles, Smart Satellites

Manuta, Lou

Satellite Communications vl6n2 PP: 21-24 Feb 1992

ISSN: 0147-7439 JRNL CODE: SAC

WORD COUNT: 2451

...TEXT: are a primary component of ATIS and Commercial Vehicle Systems. Satellites will be employed for **tracking** commercial **truck** fleets, managing traffic, and locating **vehicles** .

* **Vehicle Tracking :**

Commercial **Vehicle** Systems use Qualcomm radio determination satellites to track the **location** of individual commercial **vehicles** for national fleet management and automatic **toll** collection. Two-way messaging with a dispatcher at the trucking company is also possible over...

4/3,K/11 (Item 3 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2003 The Gale Group. All rts. reserv.

03947014 Supplier Number: 45713678
Smart traffic spies have US covered
New Scientist, p9
August 5, 1995
Language: English Record Type: Abstract
Document Type: Magazine/Journal; Academic

ABSTRACT:

...much data on them. Intelligent transport systems are being developed by thousands of companies to **track vehicles** , control traffic, automate **toll** payments, and give **route** information to motorists.

...
19950805

4/3,K/24 (Item 1 from file: 88)
DIALOG(R)File 88:Gale Group Business A.R.T.S.
(c) 2003 The Gale Group. All rts. reserv.

03778542 SUPPLIER NUMBER: 17775845
ITS and semiconductor technology. (Intelligent Transportation Systems)
Holt, Dan
Automotive Engineering, v103, n11, p18(1)
Nov, 1995
ISSN: 0098-2571 LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 1159 LINE COUNT: 00092

TEXT:

...and ITS America for the first decade of the 21st century includes traffic management systems, **car** platooning, electronic **toll** collection, in- **car** communication, and a **location** -based technology with GPS and a cellular link of some type into the **automobile** . To achieve this vision, a roadmap of some sort must be **followed** and systems developed along the way. Specifically, three systems - navigation, radar, and toll collection - were...

... problem components and save both time and money by not having to recall so many **vehicles** . Dealer service **records** for individual **vehicles** could be written into the RFID tag and easily be accessed at various dealer **locations** if service was required while traveling.

About \$23 billion of **tolls** are being collected worldwide - with the U.S. accounting for 16%, Japan for 64%, and...

19951100

4/3,K/26 (Item 2 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2003 The Gale Group. All rts. reserv.

08318447 SUPPLIER NUMBER: 17830818 (USE FORMAT 7 OR 9 FOR FULL TEXT)
CONGESTION, LOST PRODUCTIVITY, LOST LIVES CREATES NEED FOR INTELLIGENT

TRANSPORTATION

PR Newswire, p1211CLM005

Dec 11, 1995

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 393 LINE COUNT: 00041

... programmed automatically
before entering the freeway. The driver would then relax while
his or her **car** automatically **followed** a predetermined **route** .
-- Automatic tolling booths. **Cars** will no longer stop at **toll**
booths. Radio transceivers at the **toll** booths will read a
transponder on a vehicle, and the owner will receive a monthly...

19951211

4/3,K/27 (Item 3 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2003 The Gale Group. All rts. reserv.

06738417 SUPPLIER NUMBER: 14542419 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Paving the road toward smarter highways, autos. (Special Report:

Automotive)

Clarke, George L.

San Diego Business Journal, v14, n40, p19(2)

Oct 4, 1993

ISSN: 8750-6890 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT

WORD COUNT: 1248 LINE COUNT: 00100

... the Santa Monica Freeway (I-10) in Los Angeles.
Another system already proving useful on **toll** roads is electronic
identification, in which electronic devices on **vehicles** and in the road
track the time and **location** of a **vehicle** 's passage. These types of
devices have greatly reduced delays and traffic congestion by eliminating
...

19931004

4/3,K/31 (Item 1 from file: 180)
DIALOG(R) File 180:Federal Register
(c) 2003 format only The DIALOG Corp. All rts. reserv.

DIALOG Accession Number: 02364491 Supplier Number: 950302381
Automatic Vehicle Monitoring Systems
Volume: 60 Issue: 56 Page: 15248
CITATION NUMBER: 60 FR 15248
Date: THURSDAY, MARCH 23, 1995

TEXT:

... wide geographic area. This technology is used, for example, by trucking companies to locate and **track** their **vehicle** fleets, by municipal governments to pinpoint the **location** of their buses, and by entrepreneurs who are developing subscriber- based, stolen **vehicle** recovery systems. Non-multilateration systems use narrowband technology to transmit data to and from **vehicles** passing through a particular **location** . This technology is now providing valuable services to state and local governments operating various types of automated **toll** collection systems--with an estimated 500,000 cars currently served by such systems--and by...

19950323

4/3,K/33 (Item 1 from file: 264)
DIALOG(R)File 264:DIALOG Defense Newsletters
(c) 2003 The Dialog Corp. All rts. reserv.

00004429

COMMERCIAL USE OF GPS
WORLD AEROSPACE WEEKLY
September 25,1992 DOCUMENT TYPE: NEWSLETTER
PUBLISHER: FORECAST INTERNATIONAL DMS
LANGUAGE: ENGLISH WORD COUNT: 926 RECORD TYPE: FULLTEXT

(c) FORECAST INTERNATIONAL All Rights Reserved

TEXT:

...highway capacity by reducing traffic incidents, clearing them
more quickly, rerouting traffic, and automatically collecting **tolls** ;

* Assist drivers in reaching their destinations through enhanced
navigation systems with **path** -finding and **route** guidance; and

* Improve productivity of commercial, transit, and public safety
vehicles by using automated **tracking** and dispatch systems to reroute
vehicles .

An Expensive Proposition

Developing and deploying IVHS nationwide during the next 20 years will
cost...

1992

4/3,K/53 (Item 1 from file: 492)
DIALOG(R)File 492:Arizona Repub/Phoenix Gaz
(c) 2002 Phoenix Newspapers. All rts. reserv.

06851287

DOWN THE PIKE THE RATIONALE FOR TOLL ROADS: YOU GET WHAT YOU PAY FOR

Phoenix Gazette (PG) - WEDNESDAY, December 16, 1992

By: JOHN SEMMENS

Edition: Final Section: Editorial/Opinion Page: A19

Word Count: 724

1992

...Wouldn't paying tolls be time-consuming and inconvenient?

Modern technology makes stopping to pay **tolls** unnecessary. An electronic device little bigger than a credit card can be carried in the **vehicle**. This device automatically **records** the **vehicle**'s travel past the tolling **location**. The driver would be able to maintain full freeway speed. Payment would ultimately be made...

4/3,K/58 (Item 1 from file: 553)
DIALOG(R)File 553:Wilson Bus. Abs. FullText
(c) 2003 The HW Wilson Co. All rts. reserv.

03321751 H.W. WILSON RECORD NUMBER: BWBA96071751 (USE FORMAT 7 FOR FULLTEXT)

**Faster than rush-hour gridlock! Stronger than a speeding NIMBY! It's ...
high-tech super-infrastructure!.**

Lyne, Jack
Site Selection (Site Sel) v. 41 (Aug. '96) p. 707-9
LANGUAGE: English
WORD COUNT: 2046

(USE FORMAT 7 FOR FULLTEXT)

TEXT:

... the federal government to develop high-tech systems. Those schemes will speed travel for commercial **trucks** and buses.

Maryland's system uses space satellites to precisely **track vehicles** ' **locations** . Eventually, **trucks** and buses will pay some road **tolls** electronically, eliminating costly stops. Electronic sensors will read identification stickers on **vehicles** ' windshields, billing automatically.

Another technological boost in speeding products to market is unfolding in Oregon...

1996

4/3,K/59 (Item 1 from file: 608)
DIALOG(R)File 608:KR/T Bus.News.
(c)2003 Knight Ridder/Tribune Bus News. All rts. reserv.

00171966 Story Number: 5201 (USE FORMAT 7 OR 9 FOR FULLTEXT)

DETROIT FREE PRESS DAN GILLMOR COLUMN

Dan Gillmor

Detroit Free Press

October 18, 1993 13:47 E.T.

DOCUMENT TYPE: Newspaper RECORD TYPE: Fulltext LANGUAGE: English

WORD COUNT: 816

...TEXT: decide to install new cameras and higher-capacity transmission lines, allowing the system to scan **locations** , license-plate numbers and drivers' faces into the computer.

And what about other IVHS systems that include communications devices in

vehicles that talk with a central computer and get instructions on the best

route . Will the computer keep **records** of where the **car** has been, and when?

These concerns apply to electronic **tolls** and just about all other IVHS technologies. Will the information be used solely for traffic...

1993

4/3,K/63 (Item 2 from file: 636)
DIALOG(R) File 636:Gale Group Newsletter DB(TM)
(c) 2003 The Gale Group. All rts. reserv.

02840322 Supplier Number: 45759433 (USE FORMAT 7 FOR FULLTEXT)

Air Force Study on the Beam

Advanced Transportation Technology News, v2, n5, pN/A

Sept 1, 1995

Language: English Record Type: Fulltext

Document Type: Newsletter; Professional

Word Count: 448

... system. Inexpensive read-only tags can be used for short-range applications, e.g., to **track** items moving through a production cycle.

Longer range tags are finding many applications in transportation. The study specifically mentioned **vehicle** identification and automatic **toll** collection and referred to the tagging of rail **cars** to provide real-time **location** information. It also cited trucking companies using these systems to **track** both **vehicles** and freight shipments.

The report said small, short range tags can cost up to \$20...

19950901

Search Report from Ginger R. DeMille

? t1/9/

1/9/1

DIALOG(R)File 654:US PAT.FULL.

(c) FORMAT ONLY 2003 THE DIALOG CORP. All rts. reserv.

4705473 **IMAGE Available

Derwent Accession: 2002-335485

Utility

E/ Integrated traffic monitoring assistance, and communications system

Inventor: Mizunuma, Ichiro, Brighton, MA

Masaki, Ichiro, Boxborough, MA

Assignee: Mitsubishi Denki Kabushiki Kaisha (03), Tokyo, JP

Massachusetts Institute of Technology (02), Cambridge, MA

Massachusetts Institute of Technology

Mitsubishi Denki K K JP (Code: 52912 56262)

Examiner: Nguyen, Tan (Art Unit: 361)

Law Firm: Leydig, Voit & Mayer, Ltd.

	Publication Number	Kind	Date	Application Number	Filing Date
Main Patent	US 6411889	A	20020625	US 2000657522	20000908

Current US Classification (Main): 701117000 (X-ref): 340928000; 701207000

US Classification on document (Main): 701117 (X-ref): 701207; 340928

International Classification (Edition 1): G08G-001/01

Examiner Field of Search (US): 701117; 701207; 340928; 340933; 705013

Cited US Patents:

Patent Number	Date YYYYMM	Main US Class	Inventor
US 4006315	197702	179082	Halstead
US 5602375	199702	235384	Sunahara
US 5717390	199802	340933	Hasselbring
US 5850191	199812	340928	Yagi
US 5872525	199902	340928	Fukasawa
US 5963149	199910	340933	Nagura
US 6064320	200005	340933	D'Hont
US 6166659	200012	340928	Kusano
US 6219613	200104	701207	Terrier
US 6269302	200107	701207	Yoshida

Fulltext Word Count: 7046

Number of Claims: 12

Exemplary or Independent Claim Number(s): 1

Number of Drawing Sheets: 9

Number of Figures: 11

Number of US cited patent references: 10

Calculated Expiration Date: 20200908

Abstract:

A traffic monitoring, driver assistance, and communications system includes lane terminals arranged along a direction of travel of a highway, each lane terminal including a sensor for detecting passage of a vehicle, a communication antenna, a terminal transceiver for communicating with a passing vehicle through the communication antenna, and a network backbone linking the lane terminals to a data processor for compiling information on passing vehicles sensed. The system permits complex toll assessment on toll roads. By using a larger number of short

Search Report from Ginger R. DeMille

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File 350:Derwent WPIX 1963-2003/UD,UM &UP=200353
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File 344:Chinese Patents Abs Aug 1985-2003/Mar
(c) 2003 European Patent Office
File 347:JAPIO Oct 1976-2003/Apr(Updated 030804)
(c) 2003 JPO & JAPIO
File 371:French Patents 1961-2002/BOPI 200209
(c) 2002 INPI. All rts. reserv.
File 348:EUROPEAN PATENTS 1978-2003/Aug W02
(c) 2003 European Patent Office
File 349:PCT FULLTEXT 1979-2002/UB=20030814,UT=20030807
(c) 2003 WIPO/Univentio
File 2:INSPEC 1969-2003/Aug W2
(c) 2003 Institution of Electrical Engineers
File 35:Dissertation Abs Online 1861-2003/Jul
(c) 2003 ProQuest Info&Learning
File 65:Inside Conferences 1993-2003/Aug W3
(c) 2003 BLDSC all rts. reserv.
File 99:Wilson Appl. Sci & Tech Abs 1983-2003/Jul
(c) 2003 The HW Wilson Co.
File 233:Internet & Personal Comp. Abs. 1981-2003/Jul
(c) 2003, EBSCO Pub.
File 256:SoftBase:Reviews,Companies&Prods. 82-2003/Jul
(c)2003 Info.Sources Inc
File 474:New York Times Abs 1969-2003/Aug 20
(c) 2003 The New York Times
File 475:Wall Street Journal Abs 1973-2003/Aug 20
(c) 2003 The New York Times
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
(c) 2002 The Gale Group
File 15:ABI/Inform(R) 1971-2003/Aug 20
(c) 2003 ProQuest Info&Learning
File 16:Gale Group PROMT(R) 1990-2003/Aug 20
(c) 2003 The Gale Group
File 148:Gale Group Trade & Industry DB 1976-2003/Aug 20
(c)2003 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989
(c) 1999 The Gale Group
File 275:Gale Group Computer DB(TM) 1983-2003/Aug 20
(c) 2003 The Gale Group
File 621:Gale Group New Prod.Annou.(R) 1985-2003/Aug 20
(c) 2003 The Gale Group
File 9:Business & Industry(R) Jul/1994-2003/Aug 20
(c) 2003 Resp. DB Svcs.
File 20:Dialog Global Reporter 1997-2003/Aug 21
(c) 2003 The Dialog Corp.
File 476:Financial Times Fulltext 1982-2003/Aug 21
(c) 2003 Financial Times Ltd
File 610:Business Wire 1999-2003/Aug 21
(c) 2003 Business Wire.
File 613:PR Newswire 1999-2003/Aug 21
(c) 2003 PR Newswire Association Inc
File 634:San Jose Mercury Jun 1985-2003/Aug 20
(c) 2003 San Jose Mercury News
File 636:Gale Group Newsletter DB(TM) 1987-2003/Aug 20
(c) 2003 The Gale Group
File 810:Business Wire 1986-1999/Feb 28
(c) 1999 Business Wire
File 813:PR Newswire 1987-1999/Apr 30
(c) 1999 PR Newswire Association Inc

in this search

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File 63:Transport Res(TRIS) 1970-2003/Jul
(c) fmt only 2003 Dialog Corp.
File 8:EI Compendex(R) 1970-2003/Aug W2
(c) 2003 Elsevier Eng. Info. Inc.
File 94:JICST-EPlus 1985-2003/Aug W3
(c)2003 Japan Science and Tech Corp(JST)
File 62:SPIN(R) 1975-2003/Jul W1
(c) 2003 American Institute of Physics
File 144:Pascal 1973-2003/Aug W2
(c) 2003 INIST/CNRS

? ds

Set	Items	Description
S1	14	AU=(KAKIHARA OR FURATA OR TERADA OR AOKI OR MASAKI OR YASU- YUKI OR MARUHIKO OR YASUYUKI) AND TOLL? ?
S2	14	RD (unique items)

? t2/3,k/all

2/3,K/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2003 European Patent Office. All rts. reserv.

01470490

MONITORING SYSTEM FOR VEHICLE AUTOMATIC ACCOUNTING DEVICE
UBERWACHUNGSSYSTEM FUR EIN FAHRZEUG MIT AUTOMATISCHER
ABRECHNUNGSEINRICHTUNG

SYSTEME DE CONTROLE POUR DISPOSITIF DE PAIEMENT AUTOMATIQUE DE VEHICULE
PATENT ASSIGNEE:

Aisin Seiki Kabushiki Kaisha, (203727), 1, Asahi-cho 2-chome, Kariya-shi,
Aichi-ken 448-8650, (JP), (Applicant designated States: all)

TOYOTA JIDOSHA KABUSHIKI KAISHA, (203744), 1, Toyota-cho, Toyota-shi,
Aichi 471-8571, (JP), (Applicant designated States: all)

INVENTOR:

AOKI , Yasuyuki , 31-157, Matahachiyama, Okehazama, Midori-ku,
Nagoya-shi, Aichi 458-0911, (JP)

KAKIHARA , Masaki , c/o TOYOTA JIDOSHA KABUSHIKI KAISHA 1, Toyota-cho,
Toyota-shi, Aichi 471-8571, (JP)

LEGAL REPRESENTATIVE:

Leson, Thomas Johannes Alois, Dipl.-Ing. (78981), Patentanwalte
Tiedtke-Buhling-Kinne & Partner, Bavariaring 4, 80336 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 1333404 A1 030806 (Basic)
WO 2002029729 020411

APPLICATION (CC, No, Date): EP 2001972559 010928; WO 2001JP8503 010928

PRIORITY (CC, No, Date): JP 2000299552 000929

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;
LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: G07B-015/00

ABSTRACT WORD COUNT: 125

NOTE:

Figure number on first page: 0007

LANGUAGE (Publication,Procedural,Application): English; English; Japanese

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200332	1329
SPEC A	(English)	200332	7452
Total word count - document A			8781
Total word count - document B			0
Total word count - documents A + B			8781

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(c) 2003 European Patent Office
File 347:JAPIO Oct 1976-2003/Apr(Updated 030804)
(c) 2003 JPO & JAPIO
File 371:French Patents 1961-2002/BOPI 200209
(c) 2002 INPI. All rts. reserv.
File 348:EUROPEAN PATENTS 1978-2003/Aug W02
(c) 2003 European Patent Office
File 349:PCT FULLTEXT 1979-2002/UB=20030814,UT=20030807
(c) 2003 WIPO/Univentio
File 2:INSPEC 1969-2003/Aug W2
(c) 2003 Institution of Electrical Engineers
File 35:Dissertation Abs Online 1861-2003/Jul
(c) 2003 ProQuest Info&Learning
File 65:Inside Conferences 1993-2003/Aug W3
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File 99:Wilson Appl. Sci & Tech Abs 1983-2003/Jul
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File 233:Internet & Personal Comp. Abs. 1981-2003/Jul
(c) 2003, EBSCO Pub.
File 256:SoftBase:Reviews,Companies&Prods. 82-2003/Jul
(c)2003 Info.Sources Inc
File 474:New York Times Abs 1969-2003/Aug 20
(c) 2003 The New York Times
File 475:Wall Street Journal Abs 1973-2003/Aug 20
(c) 2003 The New York Times
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
(c) 2002 The Gale Group
File 15:ABI/Inform(R) 1971-2003/Aug 20
(c) 2003 ProQuest Info&Learning
File 16:Gale Group PROMT(R) 1990-2003/Aug 20
(c) 2003 The Gale Group
File 148:Gale Group Trade & Industry DB 1976-2003/Aug 20
(c)2003 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989
(c) 1999 The Gale Group
File 275:Gale Group Computer DB(TM) 1983-2003/Aug 20
(c) 2003 The Gale Group
File 621:Gale Group New Prod.Annou.(R) 1985-2003/Aug 20
(c) 2003 The Gale Group
File 9:Business & Industry(R) Jul/1994-2003/Aug 20
(c) 2003 Resp. DB Svcs.
File 20:Dialog Global Reporter 1997-2003/Aug 21
(c) 2003 The Dialog Corp.
File 476:Financial Times Fulltext 1982-2003/Aug 21
(c) 2003 Financial Times Ltd
File 610:Business Wire 1999-2003/Aug 21
(c) 2003 Business Wire.
File 613:PR Newswire 1999-2003/Aug 21
(c) 2003 PR Newswire Association Inc
File 634:San Jose Mercury Jun 1985-2003/Aug 20
(c) 2003 San Jose Mercury News
File 636:Gale Group Newsletter DB(TM) 1987-2003/Aug 20
(c) 2003 The Gale Group
File 810:Business Wire 1986-1999/Feb 28
(c) 1999 Business Wire
File 813:PR Newswire 1987-1999/Apr 30
(c) 1999 PR Newswire Association Inc

121-Aug-0311:37 AM

Search Report from Ginger R. DeMille

File 63:Transport Res(TRIS) 1970-2003/Jul
(c) fmt only 2003 Dialog Corp.
File 8: Ei Compendex(R) 1970-2003/Aug W2
(c) 2003 Elsevier Eng. Info. Inc.
File 94: JICST-EPlus 1985-2003/Aug W3
(c) 2003 Japan Science and Tech Corp(JST)
File 62: SPIN(R) 1975-2003/Jul W1
(c) 2003 American Institute of Physics
File 144: Pascal 1973-2003/Aug W2
(c) 2003 INIST/CNRS

? ds

Set	Items	Description
S1	14	AU=(KAKIHARA OR FURATA OR TERADA OR AOKI OR MASAKI OR YASU- YUKI OR MARUHIKO OR YASUYUKI) AND TOLL? ?
S2	14	RD (unique items)
S3	3975353	ACCOUNTING
S4	802871	TOLL
S5	3224	(TRACK? OR MONITOR? OR DETECT? OR SENS? OR WATCH? OR TRACE? OR TRACING) (5N) (VEHICE? ? OR CAR OR CARS OR AUTOMOBILE? ?) (5- N) (MOVEMENT? ? OR ENTRY? OR ENTER? OR EXIT? OR REENTR? OR REE- NTER?)
S6	0	S3(S)S4(S)S5
S7	0	S3(3S)S4(3S)S5
S8	61	S4(3S)S5
S9	51	RD (unique items)

Search Report from Ginger R. DeMille

? show files

File 350:Derwent WPIX 1963-2003/UD,UM &UP=200353

(c) 2003 Thomson Derwent

File 344:Chinese Patents Abs Aug 1985-2003/Mar

(c) 2003 European Patent Office

File 347:JAPIO Oct 1976-2003/Apr(Updated 030804)

(c) 2003 JPO & JAPIO

File 371:French Patents 1961-2002/BOPI 200209

(c) 2002 INPI. All rts. reserv.

? ds

Set	Items	Description
S1	11	TOLL() (ZONE? ? OR LANE? ?)
S2	324265	ZONE? ? OR LANE? ?
S3	1207023	EXIT? OR LEAVE? OR LEAVING? OR SWERV? OR "MOVE()FROM" OR R- EMOVE?
S4	2491	REENTER? OR RE() (ENTER? OR ENTRY? OR ENTRANCE) OR REENTRAN- CE?
S5	701296	ENTER? OR ENTRANCE? OR RETURN?
S6	930	(CHARGE? OR CHARGING? OR PAY?) (5N) (TOLL OR TOLLS)
S7	0	(S1 OR S2) AND (S3 OR S5) AND S4 AND S6
S8	34	(S1 OR S2) AND (S3 OR S5) AND S6

? t8/4/all

8/4/1 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2003 Thomson Derwent. All rts. reserv.

IM- *Image available*

AA- 2002-355317/200239|

XR- <XRPX> W02-279305|

TI- Toll fee receipt device for vehicle; guides user of vehicle to perform operations required to **pay** toll fee, when vehicle **enters** into manual toll collection **lane** |

FA- PIONEER ELECTRONIC CORP (PIOE)|

NC- 001|

NP- 001|

PN- JP 2002008076 A 20020111 JP 2000183369 A 20000619 200239 B|

AN- <LOCAL> JP 2000183369 A 20000619|

AN- <PR> JP 2000183369 A 20000619|

LA- JP 2002008076(14)|

AB- <PN> JP 2002008076 A|

AB- <NV> NOVELTY - The user of a vehicle is guided to perform operations required to **pay** the toll fee, when the vehicle **enters** into a manual toll collection **lane** . When the vehicle passes through an automatic fee payment **lane** , an ETC antenna communicates with the traffic equipment installed in the ETC booth for automatically collecting the toll fee. |

AB- <BASIC> USE - For collecting toll fee from vehicle in a toll gate.

ADVANTAGE - Fee payment through manual operations is smoothly performed and delay due to traffic congestion is eliminated.

DESCRIPTION OF DRAWING(S) - The figure shows the flowchart explaining the user guiding process in the outlet toll gate. (Drawing includes non-English language text).

pp; 14 DwgNo 7/7|

DE- <TITLE TERMS> TOLL; FEE; RECEIPT; DEVICE; VEHICLE; GUIDE; USER; VEHICLE ; PERFORMANCE; OPERATE; REQUIRE; PAY; TOLL; FEE; VEHICLE; **ENTER** ; MANUAL; TOLL; COLLECT; **LANE** |

DC- T05; T07; X22|

IC- <MAIN> G07B-015/00|

IC- <ADDITIONAL> G01C-021/00; G08G-001/017; G08G-001/09|

120-Aug-0310:25 AM

Search Report from Ginger R. DeMille

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File 350:Derwent WPIX 1963-2003/UD,UM &UP=200353

(c) 2003 Thomson Derwent

File 344:Chinese Patents Abs Aug 1985-2003/Mar

(c) 2003 European Patent Office

File 347:JAPIO Oct 1976-2003/Apr(Updated 030804)

(c) 2003 JPO & JAPIO

File 371:French Patents 1961-2002/BOPI 200209

(c) 2002 INPI. All rts. reserv.

? ds

Set	Items	Description
S1	1995	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGE OR CHARGED OR - PAY)
S2	1	(TEMPORAR? OR MOMENTAR?) (1W) (VEER? OR LEAVE OR EXIT OR SWE- RVE? OR LEAVING) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S3	0	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGED) (1- W) (REENTRY? OR RE()ENTRY? OR REENTER? OR RE()ENTER? OR RETURN- ING)
S4	1	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGE) (1W-) (TWICE OR MORE()THAN()ONCE)
S5	20138	(WILL OR IS OR CHARGED) (1W) (ONCE OR ONE()TIME OR ONCE()ONL- Y)
S6	5852	TOLL OR TOLLS
S7	5	S1 AND S5
S8	4	S1(S)S5
S9	1	S3 OR S4
S10	0	S6 AND S8
S11	0	S10 NOT S9
S12	294	(VEER? OR LEAV? OR EXIT? OR SWERV?) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S13	1	(S1 OR S3 OR S4 OR S5) (3S)S12
S14	1	S13 NOT (S3:S4 OR S9:S11)
S15	1	S13 OR S14

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Search Report from Ginger R. DeMille

? show files

File 350:Derwent WPIX 1963-2003/UD,UM &UP=200353

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File 344:Chinese Patents Abs Aug 1985-2003/Mar

(c) 2003 European Patent Office

File 347:JAPIO Oct 1976-2003/Apr(Updated 030804)

(c) 2003 JPO & JAPIO

File 371:French Patents 1961-2002/BOPI 200209

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? ds

Set	Items	Description
S1	1995	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGE OR CHARGED OR - PAY)
S2	1	(TEMPORAR? OR MOMENTAR?) (1W) (VEER? OR LEAVE OR EXIT OR SWE-RVE? OR LEAVING) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S3	0	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGED) (1-W) (REENTRY? OR RE()ENTRY? OR REENTER? OR RE()ENTER? OR RETURN-ING)
S4	1	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGE) (1W-) (TWICE OR MORE()THAN()ONCE)
S5	20138	(WILL OR IS OR CHARGED) (1W) (ONCE OR ONE()TIME OR ONCE()ONL-Y)
S6	5852	TOLL OR TOLLS
S7	5	S1 AND S5
S8	7	S1 AND S6
S9	14	S2 OR S4 OR S7:S8

? t9/4/all

9/4/1 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2003 Thomson Derwent. All rts. reserv.

IM- *Image available*

AA- 2001-520991/200157|

XR- <XRPX> N01-385915|

TI- Toll free call service provision system for telecommunication network, controls connection of source terminal to one of servers depending on information received from source terminal|

PA- KANSAI NIPPON DENKI TSUSHIN SYSTEM KK (KANS-N); NEC CORP (NIDE)|

AU- <INVENTORS> IZUMI A; OKADA H; TSUJII T|

NC- 002|

NP- 002|

PN- US 20010015973 A1 20010823 US 2001790508 A 20010223 200157 B|

PN- JP 2001237991 A 20010831 JP 200046493 A 20000223 200158|

AN- <LOCAL> US 2001790508 A 20010223; JP 200046493 A 20000223|

AN- <PR> JP 200046493 A 20000223|

LA- US 20010015973(13); JP 2001237991(11)|

AB- <PN> US 20010015973 A1|

AB- <NV> NOVELTY - The system has a source terminal (10) for making toll free call on called party pays line of a circuit switched network (100). Servers (20) are connected to internet protocol (IP) network (200), allowing transmission and reception of information in IP packets. A connection controller (2) controls connection of the source terminal to one of the servers depending on information received from source terminal.|

AB- <BASIC> DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for connection control method in toll free service system.

USE - For allowing toll free calls in telecommunication networks.

ADVANTAGE - Since communication is made through called party pays

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? show files

File 348:EUROPEAN PATENTS 1978-2003/Aug W02

(c) 2003 European Patent Office

File 349:PCT FULLTEXT 1979-2002/UB=20030814,UT=20030807

(c) 2003 WIPO/Univentio

? ds

Set	Items	Description
S1	4789	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGE OR CHARGED OR - PAY)
S2	0	(TEMPORAR? OR MOMENTAR?) (1W) (VEER? OR LEAVE OR EXIT OR SWE-RVE? OR LEAVING) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S3	1	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGED) (1-W) (REENTRY? OR RE()ENTRY? OR REENTER? OR RE()ENTER? OR RETURN-ING)
S4	4	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGE) (1W-) (TWICE OR MORE()THAN()ONCE)
S5	46648	(WILL OR IS OR CHARGED) (1W) (ONCE OR ONE()TIME OR ONCE()ONL-Y)
S6	5077	TOLL OR TOLLS
S7	511	S1 AND S5
S8	49	S1(S)S5
S9	5	S3 OR S4
S10	6	S6 AND S8
S11	6	S10 NOT S9
S12	297	(VEER? OR LEAV? OR EXIT? OR SWERV?) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S13	6	(S1 OR S3 OR S4 OR S5) (3S)S12
S14	6	S13 NOT (S3:S4 OR S9:S11)
?		

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? show files

File 348:EUROPEAN PATENTS 1978-2003/Aug W02

(c) 2003 European Patent Office

File 349:PCT FULLTEXT 1979-2002/UB=20030814,UT=20030807

(c) 2003 WIPO/Univentio

? ds

Set	Items	Description
S1	25	TOLL() (ZONE? ? OR LANE? ?)
S2	292932	ZONE? ? OR LANE? ?
S3	713237	EXIT? OR LEAVE? OR LEAVING? OR SWERV? OR "MOVE()FROM" OR R- EMOVE?
S4	10161	REENTER? OR RE() (ENTER? OR ENTRY? OR ENTRANCE) OR REENTRAN- CE?
S5	879826	ENTER? OR ENTRANCE? OR RETURN?
S6	755	(CHARGE? OR CHARGING? OR PAY?) (5N) (TOLL OR TOLLS)
S7	1	(S1 OR S2) (3S) (S3 OR S5) (3S) S4 (3S) S6
S8	78	(S1 OR S2) (3S) (S3 OR S5) (3S) S6
S9	78	S7 OR S8
S10	10	S9 AND IC=G06F
S11	0	S10 AND IC=G07C
S12	73	(S1 OR S2) (2S) (S3 OR S5) (2S) S6
S13	41	(S1 OR S2) (S) (S3 OR S5) (S) S6
S14	15	(S1 OR S2) (6N) (S3 OR S5) (S) S6

? t14/5,k/all

14/5,K/1 (Item 1 from file: 348)

DIALOG(R) File 348:EUROPEAN PATENTS

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01469713

POSITION RECOGNIZING DEVICE AND POSITION RECOGNIZING METHOD, AND ACCOUNTING
DEVICE AND ACCOUNTING METHOD
POSITIONSERKENNUNGSEINRICHTUNG UND POSITIONSERKENNUNGSVERFAHREN UND
VERWALTUNGSEINRICHTUNG UND VERWALTUNGSVERFAHREN
DISPOSITIF ET PROCEDE DE RECONNAISSANCE DE POSITION, ET DISPOSITIF ET
PROCEDE D'ESTIMATION

PATENT ASSIGNEE:

TOYOTA JIDOSHA KABUSHIKI KAISHA, (203744), 1, Toyota-cho, Toyota-shi,
Aichi 471-8571, (JP), (Applicant designated States: all)

Aisin Seiki Kabushiki Kaisha, (203727), 1, Asahi-cho 2-chome, Kariya-shi,
Aichi-ken 448-8650, (JP), (Applicant designated States: all)

INVENTOR:

KAKIHARA, Masaki, Toyota Jidosha K.K., 1, Toyota-cho, Toyota-shi, Aichi
471-8571, (JP)

AOKI, Yasuyuki, 31-157, Matahachiyama, Okehazama, Arimatsu-cho, Midori-ku
, Nagoya-shi, Aichi 458-0911, (JP)

LEGAL REPRESENTATIVE:

Winter, Brandl, Furniss, Hubner, Ross, Kaiser, Polte Partnerschaft
(100051), Patent- und Rechtsanwaltskanzlei Alois-Steinecker-Strasse 22,
85354 Freising, (DE)

PATENT (CC, No, Kind, Date): EP 1326212 A1 030709 (Basic)

WO 2002029728 020411

APPLICATION (CC, No, Date): EP 2001955677 010810; WO 2001JP6930 010810

PRIORITY (CC, No, Date): JP 2000300034 000929

DESIGNATED STATES: DE; DK; ES; FR; GB; IT; NL; PT; SE

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: G07B-015/00; G08G-001/0969; G01S-005/14;

G01C-021/00

ABSTRACT EP 1326212 A1

120-Aug-0310:59 AM

Search Report from Ginger R. DeMille

? show files

File 47:Gale Group Magazine DB(TM) 1959-2003/Aug 12
(c) 2003 The Gale group
File 88:Gale Group Business A.R.T.S. 1976-2003/Aug 20
(c) 2003 The Gale Group
File 141:Readers Guide 1983-2003/Jul
(c) 2003 The HW Wilson Co
File 148:Gale Group Trade & Industry DB 1976-2003/Aug 20
(c)2003 The Gale Group
File 484:Periodical Abs Plustext 1986-2003/Aug W3
(c) 2003 ProQuest
File 545:Investext(R) 1982-2003/Aug 21
(c) 2003 Thomson Financial Networks
File 608:KR/T Bus.News. 1992-2003/Aug 21
(c)2003 Knight Ridder/Tribune Bus News
File 654:US PAT.FULL. 1976-2003/Aug 19
(c) FORMAT ONLY 2003 THE DIALOG CORP.
File 702:Miami Herald 1983-2003/Aug 20
(c) 2003 The Miami Herald Publishing Co.
File 733:The Buffalo News 1990- 2003/Aug 19
(c) 2003 Buffalo News

? ds

Set	Items	Description
S1	14	TOLL? ?(2S)ACCOUNTING(2S) (CHARGE? OR CHARGING OR PAY OR PAYING OR PAID OR DEBIT? OR DEDUCT?) (3W) (TWICE OR DOUBLE OR TWO-()TIMES)
S2	10	RD (unique items)

? t2/3,k/all

2/3,K/1 (Item 1 from file: 47)

DIALOG(R)File 47:Gale Group Magazine DB(TM)
(c) 2003 The Gale group. All rts. reserv.

05328478 SUPPLIER NUMBER: 54098104 (USE FORMAT 7 OR 9 FOR FULL TEXT)
The GDP Myth.(gross domestic product; questionable whether economic growth is inherently good).

ROWE, JONATHAN; SILVERSTEIN, JUDITH
Washington Monthly, 31, 3, 17(1)
March, 1999

ISSN: 0043-0633 LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 4142 LINE COUNT: 00310

... in the economics textbooks but not in the world we inhabit. W. Steven Albrecht, an **accounting** professor at Brigham Young University, estimates that white-collar fraud costs us some \$200 billion...

...telemarketing fraud alone.

In an era of deregulation and belief in benign "market forces," the **toll** gets steadily worse. Phone bills and the like have become horrendously complex, for example. The...

...Today we literally have to pay for access to our own money, and increasingly we **pay twice**.

The average bank customer in the United States pays over \$150 a year in ATM...

2/3,K/2 (Item 1 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2003 The Gale Group. All rts. reserv.

121-Aug-0310:45 AM

Search Report from Ginger R. DeMille

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File 9:Business & Industry(R) Jul/1994-2003/Aug 20
(c) 2003 Resp. DB Svcs.
File 16:Gale Group PROMT(R) 1990-2003/Aug 20
(c) 2003 The Gale Group
File 20:Dialog Global Reporter 1997-2003/Aug 21
(c) 2003 The Dialog Corp.
File 148:Gale Group Trade & Industry DB 1976-2003/Aug 20
(c)2003 The Gale Group
File 180:Federal Register 1985-2003/Aug 20
(c) 2003 format only The DIALOG Corp
File 258:AP News Jul 2000-2003/Aug 21
(c) 2003 Associated Press
File 492:Arizona Repub/Phoenix Gaz 19862002/Jan 06
(c) 2002 Phoenix Newspapers
File 545:Investext(R) 1982-2003/Aug 21
(c) 2003 Thomson Financial Networks
File 608:KR/T Bus.News. 1992-2003/Aug 21
(c)2003 Knight Ridder/Tribune Bus News
File 619:Asia Intelligence Wire 1995-2003/Aug 20
(c) 2003 Fin. Times Ltd
File 624:McGraw-Hill Publications 1985-2003/Aug 20
(c) 2003 McGraw-Hill Co. Inc
File 626:Bond Buyer Full Text 1981-2003/Aug 21
(c) 2003 Bond Buyer
File 631:Boston Globe 1980-2003/Aug 20
(c) 2003 Boston Globe
File 635:Business Dateline(R) 1985-2003/Aug 20
(c) 2003 ProQuest Info&Learning
File 642:The Charlotte Observer 1988-2003/Aug 20
(c) 2003 Charlotte Observer
File 654:US PAT.FULL. 1976-2003/Aug 19
(c) FORMAT ONLY 2003 THE DIALOG CORP.
File 706:(New Orleans)Times Picayune 1989-2003/Aug 20
(c) 2003 Times Picayune
File 713:Atlanta J/Const. 1989-2003/Aug 21
(c) 2003 Atlanta Newspapers
File 719:(Albany) The Times Union Mar 1986-2003/Aug 20
(c) 2003 Times Union
File 727:Canadian Newspapers 1990-2003/Aug 21
(c) 2003 Southam Inc.
File 728:Asia/Pac News 1994-2003/Aug W3
(c) 2003 Dialog Corporation
File 736:Seattle Post-Int. 1990-2003/Aug 20
(c) 2003 Seattle Post-Intelligencer
File 738:(Allentown) The Morning Call 1990-2003/Aug 20
(c) 2003 Morning Call
File 743:(New Jersey)The Record 1989-2003/Aug 19
(c) 2003 No.Jersey Media G Inc
File 756:Daily/Sunday Telegraph 2000-2003/Aug 21
(c) 2003 Telegraph Group
File 781:ProQuest Newsstand 1998-2003/Aug 20
(c) 2003 ProQuest Info&Learning
File 992:NewsRoom 2003/Jan-Mar
(c) 2003 The Dialog Corporation
File 993:NewsRoom 2002/
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File 994:NewsRoom 2001
(c) 2003 The Dialog Corporation
File 995:NewsRoom 2000
(c) 2003 The Dialog Corporation

121-Aug-0310:12 AM

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? ds

Set	Items	Description
S1	58	NON()TOLL(10N) (BOOTH? OR ZONE? OR LANE?)
S2	45	RD (unique items)
? t2/3,k/all		

Search Report from Ginger R. DeMille

? show files

File 8: Ei Compendex(R) 1970-2003/Aug W2
(c) 2003 Elsevier Eng. Info. Inc.

File 11: PsycINFO(R) 1887-2003/Aug W3
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File 15: ABI/Inform(R) 1971-2003/Aug 20
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File 20: Dialog Global Reporter 1997-2003/Aug 20
(c) 2003 The Dialog Corp.

File 47: Gale Group Magazine DB(TM) 1959-2003/Aug 11
(c) 2003 The Gale group

File 48: SPORTDiscus 1962-2003/Aug
(c) 2003 Sport Information Resource Centre

File 63: Transport Res(TRIS) 1970-2003/Jul
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File 88: Gale Group Business A.R.T.S. 1976-2003/Aug 19
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File 98: General Sci Abs/Full-Text 1984-2003/Jul
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File 144: Pascal 1973-2003/Aug W2
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File 148: Gale Group Trade & Industry DB 1976-2003/Aug 19
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File 158: DIOGENES(R) 1976-2003/Aug W3
(c) 2003 DIOGENES

File 160: Gale Group PROMT(R) 1972-1989
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File 180: Federal Register 1985-2003/Aug 20
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File 347: JAPIO Oct 1976-2003/Apr(Updated 030804)
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File 348: EUROPEAN PATENTS 1978-2003/Aug W02
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File 349: PCT FULLTEXT 1979-2002/UB=20030814, UT=20030807
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File 553: Wilson Bus. Abs. FullText 1982-2003/Jul
(c) 2003 The HW Wilson Co

File 609: Bridge World Markets 2000-2001/Oct 01
(c) 2001 Bridge

File 613: PR Newswire 1999-2003/Aug 20
(c) 2003 PR Newswire Association Inc

File 623: Business Week 1985-2003/Aug 19
(c) 2003 The McGraw-Hill Companies Inc

File 624: McGraw-Hill Publications 1985-2003/Aug 20
(c) 2003 McGraw-Hill Co. Inc

File 635: Business Dateline(R) 1985-2003/Aug 20
(c) 2003 ProQuest Info&Learning

File 652: US Patents Fulltext 1971-1975
(c) format only 2002 The Dialog Corp.

File 654: US PAT. FULL. 1976-2003/Aug 19
(c) FORMAT ONLY 2003 THE DIALOG CORP.

File 701: St Paul Pioneer Pr Apr 1988-2003/Aug 17
(c) 2003 St Paul Pioneer Press

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File 711:Independent(London) Sep 1988-2003/Aug 20
(c) 2003 Newspaper Publ. PLC
File 718:Pittsburgh Post-Gazette Jun 1990-2003/Aug 20
(c) 2003 PG Publishing
File 727:Canadian Newspapers 1990-2003/Aug 20
(c) 2003 Southam Inc.
File 757:Mirror Publications/Independent Newspapers 2000-2003/Aug 20
(c) 2003
File 768:EIU Market Research 2003/Aug 18
(c) 2003 EIU
File 781:ProQuest Newsstand 1998-2003/Aug 20
(c) 2003 ProQuest Info&Learning
File 813:PR Newswire 1987-1999/Apr 30
(c) 1999 PR Newswire Association Inc
File 990:NewsRoom Current 2003/Aug 20
(c) 2003 The Dialog Corp.
File 992:NewsRoom 2003/Jan-Mar
(c) 2003 The Dialog Corporation
File 993:NewsRoom 2002/
(c) 2003 The Dialog Corporation
File 994:NewsRoom 2001
(c) 2003 The Dialog Corporation
? ds

Set	Items	Description
S1	132	(TRACK? OR MONITOR? OR DETECT?) (5N) (CHANGE? OR CHANGING OR VEER? OR SWERV?) (3N) (ROAD? ? OR LANE? ? OR ZONE? ?) (S) (ACCOUN- TING OR DEBIT? OR PAY? OR PAID)
S2	114	RD (unique items)

? t2/3,k/all

2/3,K/1 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)
(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv..

04662126 E.I. No: EIP97043593014

Title: Using pay zone steering in high-angle and horizontal wells
Author: Jackson, Charles E.
Corporate Source: Halliburton Energy Services
Conference Title: Proceedings of the 1997 10th Middle East Oil Show &
Conference. Part 2 (of 2)
Conference Location: Bahrain, Saudi Arabia Conference Date:
19970315-19970318
E.I. Conference No.: 46214
Source: Proceedings of the Middle East Oil Show v 2 1997. Society of
Petroleum Engineers (SPE), Richardson, TX, USA. p 487-500 SPE 37819
Publication Year: 1997
CODEN: PEOSEH
Language: English

Abstract: This paper examines the benefits of **Pay** Zone Steering, an integrated approach to drilling high-angle and horizontal wells incorporating advanced resistivity forward modeling into the overall planning and drilling phases. **Pay** Zone Steering provides quick **detection** of geological **changes** and allows for subsequent adjustments to the well plan. Key to this method are (1...
...well's critical features are discussed, as well as applications for post-well analysis. The **Pay** Zone Steering process, from establishing objectives to final completion, is illustrated with case studies. The...

Search Report from Ginger R. DeMille

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File 88:Gale Group Business A.R.T.S. 1976-2003/Aug 19
(c) 2003 The Gale Group

File 103:Energy SciTec 1974-2003/Aug B1
(c) 2003 Contains copyrighted material

File 148:Gale Group Trade & Industry DB 1976-2003/Aug 19
(c)2003 The Gale Group

File 180:Federal Register 1985-2003/Aug 20
(c) 2003 format only The DIALOG Corp

File 340:CLAIMS(R)/US Patent 1950-03/Aug 14
(c) 2003 IFI/CLAIMS(R)

? ds

Set	Items	Description
S1	5	TOLL? ?(S) (ACCOUNTING OR TRACK?) (S) (PAY? OR DEBIT? OR DEDU-CT? OR CHARGE? OR CHARGING? OR PAID) (3W) (DOUBLE OR TWICE OR T- WO()TIMES OR MORE()THAN()ONCE)
S2	5	RD (unique items)

? t2/3,k/all

2/3,K/1 (Item 1 from file: 88)

DIALOG(R)File 88:Gale Group Business A.R.T.S.
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04153451 SUPPLIER NUMBER: 19009697

Copyright and a democratic civil society.

Netanel, Neil Weinstock

Yale Law Journal, 106, n2, 283-387

Nov, 1996

ISSN: 0044-0094

LANGUAGE: English

RECORD TYPE: Fulltext; Abstract

WORD COUNT: 64816 LINE COUNT: 05369

... Management Group" with the intent to promote widescale electronic clearance, per-use billing, encryption, and **tracking** for content that is available over digital networks. See Copyright Clearance Ctr., Inc., Press Release...F.3d 913, 936 (2d Cir. 1994) (Jacobs, J., dissenting) (noting that plaintiff journal publisher **charged** institutional subscribers **double** normal subscription rate in expectation that employees would copy articles for personal use). At the...onerous than some minimalist critics fear. Charges could take place automatically and mechanically, much like **toll** charges on a phone bill or, more likely, as a lump sum license fee, added...

2/3,K/2 (Item 1 from file: 103)

DIALOG(R)File 103:Energy SciTec

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03231208 CANM-91-001255; EDB-91-158644

Title: Natural gas purchasing practices in Ontario

Author(s): Milne, P. (Peter Milne Associates Inc., Ottawa, ON (Canada))

Title: Twenty-ninth annual conference (of the) Ontario Petroleum Institute Inc.

Corporate Source: Ontario Petroleum Inst., Inc., Chatham, ON (Canada)

Conference Title: 29. annual conference (of the) Ontario Petroleum Institute Inc

Conference Location: London (Canada) Conference Date: 14-16 Nov 1990

Publication Date: 1990

p 1-16, Paper 14 (vp.)

Report Number(s): OPI-CE03915 CONF-9011246--; CE--03915

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File 62:SPIN(R) 1975-2003/Jul W1

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File 370:Science 1996-1999/Jul W3

(c) 1999 AAAS

File 94:JICST-EPlus 1985-2003/Aug W2

(c)2003 Japan Science and Tech Corp(JST)

File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13

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Set	Items	Description
S1	2055	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGE OR CHARGED OR - PAY)
S2	0	(TEMPORAR? OR MOMENTAR?) (1W) (VEER? OR LEAVE OR EXIT OR SWE-RVE? OR LEAVING) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S3	0	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGED) (1-W) (REENTRY? OR RE()ENTRY? OR REENTER? OR RE()ENTER? OR RETURN-ING)
S4	0	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGE) (1W-) (TWICE OR MORE()THAN()ONCE)
S5	1237	(WILL OR IS OR CHARGED) (1W) (ONCE OR ONE()TIME OR ONCE()ONL-Y)
S6	6455	TOLL OR TOLLS
S7	0	S2 OR S3
S8	0	S4 AND S6
S9	0	S7 OR S8
S10	0	RD (unique items)
S11	16	(S1 OR S5)(S)S6
S12	62	(VEER? OR LEAV? OR EXIT? OR SWERV?) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S13	0	S5(S)S12
S14	0	RD (unique items)
S15	0	S10 OR S14
S16	0	S2 OR S3 OR S4 OR S10 OR S15
S17	0	RD (unique items)
S18	16	S11 OR S17
S19	16	RD (unique items)

? t19/3,k/all

19/3,K/1 (Item 1 from file: 94)

DIALOG(R)File 94:JICST-EPlus

(c)2003 Japan Science and Tech Corp(JST). All rts. reserv.

05363052 JICST ACCESSION NUMBER: 02A0939974 FILE SEGMENT: JICST-E
Investigation and Realization of pay-TV System on IP Network. Experiment on TV broadcasting System over IP Multicast with User Authentication.
 KITAMURA MASAKAZU (1); OSHIUMI TAKUSHI (1); NISHIO SHUICHI (1); MOTONO TOMOHARU (1); ODA YOSHIKAZU (2)
 (1) Nippon Telegraph and Telephone West Corp., JPN; (2) Ntt-nishinihon Gijutsubu

Joho Shori Gakkai Shinpojiumu Ronbunshu, 2002, VOL.2002,NO.15, PAGE.111-116 , FIG.3, TBL.2, REF.10

JOURNAL NUMBER: Y0978BAT ISSN NO: 1344-0640

UNIVERSAL DECIMAL CLASSIFICATION: 681.3:654 681.3.02-759 681.3.066

LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Conference Proceeding

ARTICLE TYPE: Original paper

MEDIA TYPE: Printed Publication

ABSTRACT: This paper describes how to realize toll TV systems utilizing

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File 62:SPIN(R) 1975-2003/Jul W1
(c) 2003 American Institute of Physics
File 370:Science 1996-1999/Jul W3
(c) 1999 AAAS
File 94:JICST-EPlus 1985-2003/Aug W3
(c)2003 Japan Science and Tech Corp(JST)
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
(c) 2002 The Gale Group

? ds

Set	Items	Description
S1	10	TOLL()(ZONE? ? OR LANE? ?)
S2	96135	ZONE? ? OR LANE? ?
S3	105119	EXIT? OR LEAVE? OR LEAVING? OR SWERV? OR "MOVE()FROM" OR R- EMOVE?
S4	1625	REENTER? OR RE()(ENTER? OR ENTRY? OR ENTRANCE) OR REENTRAN- CE?
S5	242501	ENTER? OR ENTRANCE? OR RETURN?
S6	528	(CHARGE? OR CHARGING? OR PAY?)(5N)(TOLL OR TOLLS)
S7	0	(S1 OR S2) AND (S3 OR S5) AND S4 AND S6
S8	7	(S1 OR S2) AND (S3 OR S5) AND S6
S9	7	RD (unique items)

? t9/3,k/all

9/3,K/1 (Item 1 from file: 583)

DIALOG(R)File 583:Gale Group Globalbase(TM)
(c) 2002 The Gale Group. All rts. reserv.

09098229

Expressway smart cards put in the slow lane
THAILAND: SMART CARD SYSTEM FOR HIGHWAY HALTED
Bangkok Post (XBN) 30 Apr 1999 p.3
Language: ENGLISH

Expressway smart cards put in the slow lane

... for the first 20 km. The contactless smart card system involves drivers collecting cards upon **entrance** into the expressway. **Tolls** will be **charged** when drivers **return** the cards at **exits** where readings will then be taken.

9/3,K/2 (Item 2 from file: 583)

DIALOG(R)File 583:Gale Group Globalbase(TM)
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06677755

Cabbies who take passengers to KLIA allowed extra RM 10
MALAYSIA: OUT OF **ZONE** OPERATION FOR SUKOM
New Straits Times (XAS) 27 Aug 1998 p.7
Language: ENGLISH

MALAYSIA: OUT OF **ZONE** OPERATION FOR SUKOM

...the Commonwealth Games (Sukom) to be held in Malaysia, taxis are allowed for out of **zone** operation commencing 1 - 30 September 1998. This was to ensure tourist and visitors are adequately...

...above the meter to Jalan Duta bus stops. This is to cover the cost of

Search Report from Ginger R. DeMille

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File 6:NTIS 1964-2003/Aug W3

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File 63:Transport Res(TRIS) 1970-2003/Jul

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Set	Items	Description
S1	238	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGE OR CHARGED OR - PAY)
S2	0	(TEMPORAR? OR MOMENTAR?) (1W) (VEER? OR LEAVE OR EXIT OR SWE- RVE? OR LEAVING) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S3	0	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGED) (1- W) (REENTRY? OR RE()ENTRY? OR REENTER? OR RE()ENTER? OR RETURN- ING)
S4	0	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGE) (1W-) (TWICE OR MORE()THAN()ONCE)
S5	492	(WILL OR IS OR CHARGED) (1W) (ONCE OR ONE()TIME OR ONCE()ONL- Y)
S6	6441	TOLL OR TOLLS
S7	0	S2 OR S3
S8	0	S4 AND S6
S9	0	S7 OR S8
S10	0	RD (unique items)
S11	14	(S1 OR S5) (S)S6
S12	165	(VEER? OR LEAV? OR EXIT? OR SWERV?) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S13	0	S5(S)S12
S14	0	RD (unique items)
S15	0	S10 OR S14
S16	0	S2 OR S3 OR S4 OR S10 OR S15
S17	0	RD (unique items)
S18	14	S11 OR S17
S19	12	RD (unique items)

? t19/3,k/all

19/3,K/1 (Item 1 from file: 6)

DIALOG(R)File 6:NTIS

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2002467 NTIS Accession Number: PB97-151344

Network Optimized Congestion Pricing: A Parable, Model and Algorithm
(Final rept)

Dial, R. B.

John A. Volpe National Transportation Systems Center, Cambridge, MA.
Corp. Source Codes: 098811000

Sponsor: Department of Transportation, Washington, DC. Travel Model
Improvement Program.

Report No.: DOT-T-95-20

May 95 40p

Languages: English

Journal Announcement: GRAI9713

Sponsored by Department of Transportation, Washington, DC. Travel Model
Improvement Program.

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NTIS Prices: PC A04/MF A01

This report recites a parable, formulates a model and devises an

119-Aug-0305:14 PM

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File 80:TGG Aerospace/Def.Mkts(R) 1986-2003/Aug 15

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File 637:Journal of Commerce 1986-2003/Aug 19

(c) 2003 Commonwealth Bus. Media

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Set	Items	Description
S1	1677	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGE OR CHARGED OR - PAY)
S2	0	(TEMPORAR? OR MOMENTAR?) (1W) (VEER? OR LEAVE OR EXIT OR SWE- RVE? OR LEAVING) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S3	0	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGED) (1- W) (REENTRY? OR RE()ENTRY? OR REENTER? OR RE()ENTER? OR RETURN- ING)
S4	1	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGE) (1W-) (TWICE OR MORE()THAN()ONCE)
S5	1458	(WILL OR IS OR CHARGED) (1W) (ONCE OR ONE()TIME OR ONCE()ONL- Y)
S6	5026	TOLL OR TOLLS
S7	0	S2 OR S3
S8	0	S4 AND S6
S9	0	S7 OR S8
S10	0	RD (unique items)
S11	21	(S1 OR S5) (S)S6
S12	48	(VEER? OR LEAV? OR EXIT? OR SWERV?) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S13	0	S5(S)S12
S14	0	RD (unique items)
S15	0	S10 OR S14
S16	1	S2 OR S3 OR S4 OR S10 OR S15
S17	1	RD (unique items)
S18	22	S11 OR S17
S19	17	RD (unique items)

? t19/3,k/all

19/3,K/1 (Item 1 from file: 637)

DIALOG(R)File 637:Journal of Commerce

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0006292576

Germany delays highway tolls

JOURNAL OF COMMERCE (JC) - August 1, 2003

By: BRUCE BARNARD - THE JOURNAL OF COMMERCE ONLINE

Edition: Web Section: LOGIS Page: WP

Word Count: 252

... chaos because of a shortage of truck-related hardware needed to collect the pass-through toll .

There is little chance, however, that the government will abandon the 14 cents-a-mile...

... for investment in rail freight. Germany is the only large continental European country that does not charge for the use of its roads prompting many hundreds of thousands of foreign trucks to...

... into the legality of an \$800 million government program to compensate domestic truckers for the toll .

Shippers and truckers won another reprieve after the European Court of Justice ordered Austria to...

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File 471:New York Times Fulltext 90-Day 2003/Aug 18
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(c) 2003 Charlotte Observer
File 643:Grand Forks Herald 1995-2003/Aug 18
(c) 2003 Grand Forks Herald
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File 703:USA Today 1989-2003/Aug 18
(c) 2003 USA Today
File 704:(Portland)The Oregonian 1989-2003/Aug 18
(c) 2003 The Oregonian
File 706:(New Orleans)Times Picayune 1989-2003/Aug 19
(c) 2003 Times Picayune
File 707:The Seattle Times 1989-2003/Aug 17
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File 708:Akron Beacon Journal 1989-2003/Aug 15
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File 717:The Washington Times Jun 1989-2003/Aug 19
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File 718:Pittsburgh Post-Gazette Jun 1990-2003/Aug 19
(c) 2003 PG Publishing
File 719:(Albany) The Times Union Mar 1986-2003/Aug 18
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 (c) 2003 The State
 File 721: Lexington Hrlld.-Ldr. 1990-2003/Aug 17
 (c) 2003 Lexington Herald-Leader
 File 722: Cincinnati/Kentucky Post 1990-2003/Aug 18
 (c) 2003 The Cincinnati Post
 File 723: The Wichita Eagle 1990-2003/Aug 18
 (c) 2003 The Wichita Eagle
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 File 725: (Cleveland) Plain Dealer Aug 1991-2003/Aug 18
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 File 736: Seattle Post-Int. 1990-2003/Aug 16
 (c) 2003 Seattle Post-Intelligencer
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 (c) 2003 Morning Call
 File 740: (Memphis) Comm.Appeal 1990-2003/Aug 18
 (c) 2003 The Commercial Appeal
 File 741: (Norfolk) Led./Pil. 1990-2003/Aug 15
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 File 743: (New Jersey) The Record 1989-2003/Aug 15
 (c) 2003 No.Jersey Media G Inc
 File 744: (Biloxi) Sun Herald 1995-2003/Aug 15
 (c) 2003 The Sun Herald

? ds

Set	Items	Description
S1	151789	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGE OR CHARGED OR - PAY)
S2	11	(TEMPORAR? OR MOMENTAR?) (1W) (VEER? OR LEAVE OR EXIT OR SWERVE? OR LEAVING) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S3	2	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGED) (1W) (REENTRY? OR RE()ENTRY? OR REENTER? OR RE()ENTER? OR RETURNING)
S4	34	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGE) (1W-) (TWICE OR MORE()THAN()ONCE)
S5	90063	(WILL OR IS OR CHARGED) (1W) (ONCE OR ONE()TIME OR ONCE()ONLY)
S6	348701	TOLL OR TOLLS
S7	13	S2 OR S3
S8	1	S4 AND S6
S9	14	S7 OR S8
S10	14	RD (unique items)
S11	610	(S1 OR S5) (S)S6
S12	31101	(VEER? OR LEAV? OR EXIT? OR SWERV?) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S13	6	S5(S)S12
S14	6	RD (unique items)
S15	20	S10 OR S14

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File 6:NTIS 1964-2003/Aug W3
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File 63:Transport Res(TRIS) 1970-2003/Jul
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Set	Items	Description
S1	187	TOLL()(ZONE? ? OR LANE? ?)
S2	62873	ZONE? ? OR LANE? ?
S3	47177	EXIT? OR LEAVE? OR LEAVING? OR SWERV? OR "MOVE()FROM" OR R- EMOVE?
S4	1425	REENTER? OR RE()(ENTER? OR ENTRY? OR ENTRANCE) OR REENTRAN- CE?
S5	57181	ENTER? OR ENTRANCE? OR RETURN?
S6	772	(CHARGE? OR CHARGING? OR PAY?)(5N)(TOLL OR TOLLS)
S7	0	(S1 OR S2) AND (S3 OR S5) AND S4 AND S6
S8	16	(S1 OR S2) AND (S3 OR S5) AND S6
S9	16	RD (unique items)

? t9/3,k/all

9/3,K/1 (Item 1 from file: 63)

DIALOG(R)File 63:Transport Res(TRIS)
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00823539 DA

TITLE: CONGESTION AND TRAFFIC MANAGEMENT

AUTHOR(S): Poole, RW, Jr

CORPORATE SOURCE: Greenwood Publishing Group, 88 Post Road West, Westport,
CT, 06881-

JOURNAL: Contributions in Economics and Economic History Issue Number:
224 Pag: pp 59-77

PUBLICATION DATE: 20010000 PUBLICATION YEAR: 2001

LANGUAGE: English SUBFILE: HRIS (H)

ISSN: 00849235

AVAILABILITY: Greenwood Publishing Group; 88 Post Road West ; Westport
; CT ; 06881-

ORDER NUMBER: N/A

FIGURES: 1 Fig. TABLES: 2 Tab.

...ABSTRACT: pricing can be developed. The most successful programs thus far have high-occupancy/toll (HOT) **lanes** allowing vehicles not meeting the car-pooling requirement to purchase excess capacity in those **lanes**. The article suggests that a reform of highway finance is necessary to make road pricing...

...concludes by suggesting the following policy changes: defederalize the highway system; convert high occupancy vehicle **lanes** to HOT **lanes**; use annual registration fees for local streets and roads; end "double taxation" of **paying** both **tolls** and fuel taxes; enact public-private partnership laws; and develop national standards for electronic tolling.

...DESCRIPTORS: Demand; Road pricing; Peak hour traffic; Off peak periods; Political factors; Congestion pricing; High occupancy **toll lanes**; Financing; Automated toll collection; Technological innovations; Vehicle miles of travel; Global Positioning System; Public utilities; Federal government; Private **enterprise**; Standards; Public private partnerships; Taxation; Registration fees; High occupancy vehicle **lanes**

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File 475:Wall Street Journal Abs 1973-2003/Aug 19
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File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
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Set	Items	Description
S1	61	TOLL()(ZONE? ? OR LANE? ?)
S2	186669	ZONE? ? OR LANE? ?
S3	248164	EXIT? OR LEAVE? OR LEAVING? OR SWERV? OR "MOVE()FROM" OR R- EMOVE?
S4	5264	REENTER? OR RE()(ENTER? OR ENTRY? OR ENTRANCE) OR REENTRAN- CE?
S5	500904	ENTER? OR ENTRANCE? OR RETURN?
S6	953	(CHARGE? OR CHARGING? OR PAY?)(5N)(TOLL OR TOLLS)
S7	0	(S1 OR S2) AND (S3 OR S5) AND S4 AND S6
S8	11	(S1 OR S2) AND (S3 OR S5) AND S6
S9	11	RD (unique items)

? t9/7/all

9/7/1 (Item 1 from file: 2)

DIALOG(R)File 2:INSPEC

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00289760 INSPEC Abstract Number: C71016124

Title: Counting device including an escapement with no automatic return bias

Inventor(s): Neild, D.W.

Assignee(s): GEC Ltd

Patent Number: US 3580496 Issue Date: 710525

Application Date: 671018

Priority Appl. Number: GB 47177/66 Priority Appl. Date: 661021

Country of Publication: USA

Language: English Document Type: Patent (PT)

Treatment: Practical (P)

Abstract: Describes a counting device for use in a road toll charging or similar system having a counter driven by a long life clockwork type mechanism whose escapement is controlled by input means response to signals radiated by roadside sources. The mechanism is sealed in a tamper-proof casing provided with means for indicating that it is operative. The toll system may produce an incomplete half unit registration when a vehicle carrying the counting device **enters** a road **zone** which unit is completed by a further half unit registration as the vehicle **leaves** the **zone**.

Subfile: C

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Set	Items	Description
S1	4472	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGE OR CHARGED OR - PAY)
S2	0	(TEMPORAR? OR MOMENTAR?) (1W) (VEER? OR LEAVE OR EXIT OR SWE- RVE? OR LEAVING) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S3	0	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGED) (1- W) (REENTRY? OR RE()ENTRY? OR REENTER? OR RE()ENTER? OR RETURN- ING)
S4	0	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGE) (1W-) (TWICE OR MORE()THAN()ONCE)
S5	4095	(WILL OR IS OR CHARGED) (1W) (ONCE OR ONE()TIME OR ONCE()ONL- Y)
S6	17076	TOLL OR TOLLS
S7	3	S1 AND S5
S8	3	S1(S)S5
S9	0	S3 OR S4
S10	0	S6 AND S8
S11	0	S10 NOT S9
S12	179	(VEER? OR LEAV? OR EXIT? OR SWERV?) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S13	0	(S1 OR S3 OR S4 OR S5) (3S)S12
S14	0	S13 NOT (S3:S4 OR S9:S11)
S15	0	S13 OR S14
S16	3	RD S7 (unique items)

? t16/7/all

16/7/1 (Item 1 from file: 256)

DIALOG(R)File 256:SoftBase:Reviews,Companies&Prods.
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00124244 DOCUMENT TYPE: Review

PRODUCT NAMES: Copyrights (836125)

TITLE: Steal This Column! Protecting intellectual property
AUTHOR: Blacharski, Dan
SOURCE: Computer Currents, v18 n5 p35(1) Mar 14, 2000
ISSN: 8756-0046

RECORD TYPE: Review

119-Aug-0303:53 PM

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 File 810:Business Wire 1986-1999/Feb 28
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 File 813:PR Newswire 1987-1999/Apr 30
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? ds

Set	Items	Description
S1	1010	TOLL() (ZONE? ? OR LANE? ?)
S2	1378801	ZONE? ? OR LANE? ?
S3	4486925	EXIT? OR LEAVE? OR LEAVING? OR SWERV? OR "MOVE() FROM" OR R- EMOVE?
S4	88463	REENTER? OR RE() (ENTER? OR ENTRY? OR ENTRANCE) OR REENTRAN- CE?
S5	13236319	ENTER? OR ENTRANCE? OR RETURN?
S6	25641	(CHARGE? OR CHARGING? OR PAY?) (5N) (TOLL OR TOLLS)
S7	2	(S1 OR S2) (3S) (S3 OR S5) (3S) S4 (3S) S6
S8	576	(S1 OR S2) (3S) (S3 OR S5) (3S) S6
S9	576	S7 OR S8
S10	0	S9 AND IC=G06F
S11	0	S10 AND IC=G07C
S12	459	(S1 OR S2) (2S) (S3 OR S5) (2S) S6
S13	140	(S1 OR S2) (S) (S3 OR S5) (S) S6
S14	58	(S1 OR S2) (6N) (S3 OR S5) (S) S6
S15	49	RD (unique items)

? tl5/3,k/all

15/3,K/1 (Item 1 from file: 15)

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02145765 69916478

Safety considerations in designing electronic toll plazas: Case study
 Anonymous

Institute of Transportation Engineers. ITE Journal v71n3 PP: 20-24 Mar

120-Aug-0311:20 AM

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Set	Items	Description
S1	154466	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGE OR CHARGED OR - PAY)
S2	3	(TEMPORAR? OR MOMENTAR?) (1W) (VEER? OR LEAVE OR EXIT OR SWE- RVE? OR LEAVING) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S3	4	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGED) (1- W) (REENTRY? OR RE()ENTRY? OR REENTER? OR RE()ENTER? OR RETURN- ING)
S4	46	("NOT" OR WON()T OR WILL() "NOT") (1W) (CHARGED OR CHARGE) (1W-) (TWICE OR MORE()THAN()ONCE)
S5	157900	(WILL OR IS OR CHARGED) (1W) (ONCE OR ONE()TIME OR ONCE()ONL- Y)
S6	783924	TOLL OR TOLLS
S7	7	S2 OR S3
S8	4	S4 AND S6
S9	11	S7 OR S8
S10	7	RD (unique items)
S11	1153	(S1 OR S5) (S) S6
S12	16984	(VEER? OR LEAV? OR EXIT? OR SWERV?) (3W) (ROAD OR HIGHWAY OR STREET OR TARMAC?)
S13	6	S5(S) S12
S14	5	RD (unique items)
S15	12	S10 OR S14

? t15/3,k/all

15/3,K/1 (Item 1 from file: 15)
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File 247:ONTAP(R) Gale Group Magazine Index(TM)
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File 258:AP News Jul 2000-2003/Aug 20
(c) 2003 Associated Press
File 267:Finance & Banking Newsletters 2003/Aug 18
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File 348:EUROPEAN PATENTS 1978-2003/Aug W02
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File 622:EIU Magazines 2000-2003/Aug 19
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File 652:US Patents Fulltext 1971-1975
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? ds

Set	Items	Description
S1	89	(CHARGE? OR CHARGING OR PAYING OR PAY OR PAYS OR PAID OR D-EDUCT? OR DEBIT?) (3W) (TWICE OR SECOND OR TWO OR AGAIN) (S) TOLL? ?(S) (ZONE? OR LANE? OR SWERV? OR RANGE)
S2	77	RD (unique items)

? t2/3,k/all

2/3,K/1 (Item 1 from file: 13)

DIALOG(R)File 13:BAMP

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1268203 Supplier Number: 03500484 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Valuing flexibility in private toll road development: analysis of the Dulles Greenway.

(uncertainty and choice of timing can alter an irreversible capital investment decision)

Article Author(s): Wooldridge, Stephen C; Garvin, Michael J; Cheah, Yuen Jen; Miller, John B

Journal of Structured and Project Finance, v 7, n 4, p 25(12)
January 2002

DOCUMENT TYPE: Journal (United States)

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 6950

(USE FORMAT 7 OR 9 FOR FULLTEXT)

TEXT:

...a certificate of authority in 1990.

Project scope and financing. Under TRIP II, the Dulles Toll Road extension became the Dulles Greenway Three years of planning, design, and arranging financing resulted in the state's approval of a four-lane, limited-access highway with seven inter-charges. Two future interchanges would be added when traffic volume reached appropriate levels. Located within 250 feet of right of way, the project was designed to accommodate future lane expansion. Electronic toll collection technology was included in the design to maintain steady traffic flow. The project originally...

2/3,K/2 (Item 1 from file: 15)

DIALOG(R)File 15:ABI/Inform(R)

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02343083 113734282

Lee County's variable pricing project

Burris, Mark W; Swenson, Chris R; Crawford, George L

Institute of Transportation Engineers. ITE Journal v72n4 PP: 36-40 Apr 2002

ISSN: 0162-8178 JRNL CODE: TE